Clinical Medicine

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1. Oil Paint and Drug Reporter, April 30, 1956.

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1. Spiesman, M. G. and Malow, L.: Amer. J. Proctology, June 1956.

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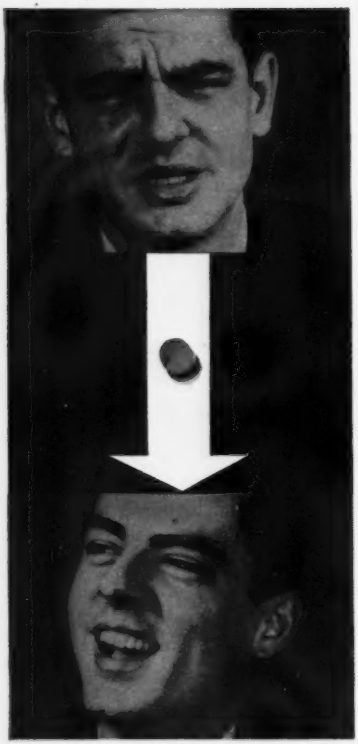

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EDITORIAL

Simple Clinical Test for the Early Diagnosis of Pregnancy

Oral administration of combined progesterone and estrogen in the dosage prescribed constitutes a reliable clinical method for early diagnosis of pregnancy

JAMES M. NORTHINGTON, M.D., *Editor*

A simple, reliable test on which the early diagnosis of pregnancy may be made has been found.

In 1953 Matthew and Hobson published results of intramuscular injections of progesterone and estrogen (Disecron) as a means of diagnosing pregnancy. Although this test was found accurate, and was more reliable than the Hogben test in the early weeks of pregnancy, it required two consecutive daily injections. To overcome this element of discomfort and inconvenience to the patient, another series of cases has been accumulated using progesterone and estrogen in circumstances similar to the earlier trial.

A total of 100 mg. of ethisterone and 0.5 mg. of ethinyl-estradiol was given on two consecutive days. Five Orasecron tablets each containing 10 mg. of ethisterone and 0.05 mg. of ethinyl-estradiol, were given on each of the two days. The tablets, taken one every three hours, caused no upset, although a few patients complained of mild nausea. In all, 94 patients have so far been subjected to this test. The interval from the last menstrual period did not exceed 112 days in any instance. Cases were

[1] G. D. Matthew, F.R.C.O.G., *British M. J.*, 4999: 979, 1956.

not included in which the diagnosis of pregnancy would be reasonably certain on pelvic examination.

Patients were derived mainly from the sterility clinic. The average age was 27.6 years. The cases have been divided into two groups. In the first, uterine bleeding was associated with the administration of the test dosage of combined progesterone and estrogen. In the second it was not.

Group I consisted of 62 patients (average age 27.7 years), in whom follow-up examination established the ultimate diagnosis of pregnancy. In this group there were *no instances* of uterine bleeding associated with the administration of progesterone and estrogen in the dosage prescribed. In 37 cases (60%) the calculated interval between the first day of the missed period and the administration of the tablets was within 14 days. This is the period of pregnancy during which the Hogben biological test is not regarded as being reliable (Matthew & Hobson, 1953).

Group II consisted of 32 patients (average 27.5 years of age) whose follow-up examination showed there was no pregnancy. Although cases of short-term secondary amenorrhea without pregnancy are less often encountered (thus the total number included in this group is smaller than in Group I) the two series are comparable, especially in the timing of the test. *Every patient* in this group had uterine bleeding within a reasonable time from the taking of the progesterone and estrogen tablets. The time interval before bleeding occurred varied up to a maximum of 14 days. Six patients began bleeding on the second day of the test, four on day one after completion of the course of tablets, one on day two, six on day three, three on day four, one on day five, two on day six, and two on day seven. Thus, in 78% of the cases bleeding occurred within a week of the test. Of the remainder, one patient had bleeding on day eight, one each on days 9, 10, 11 and 14, and two on day 12.

Parenteral administration used in the previous trial has now been succeeded by oral administration, and in 94 cases when amenorrhea was due to pregnancy, no withdrawal bleeding occurred, and no untoward effects upon the pregnancy were noted. In cases of non-pregnancy amenorrhea, withdrawal bleeding occurred within a varying period of time up to a maximum of 14 days.

Nystagmus as a Physical Sign in Alcoholic Intoxication

Experimental evidence suggests that the nystagmus found in the alcoholic motorist is due to the taking of alcohol. The fact that no other eye sign is found indicates that nystagmus is the earliest eye sign produced by alcohol and is not dependent on any abnormality of the pupil size or reaction. In a large proportion of subjects it was noted, when determining reaction time after alcohol, that the first response to the stimulus was greatly delayed. This occurred in spite of the fact that the subject was well aware that the test was about to be made.

Howells, D. E., *Brit. M. J.*, 4980:1405-1406, 1956.

ORIGINAL ARTICLES

The Challenge of Pancreatitis

Important pitfalls in the evaluation of the serum pancreatic enzyme tests and the clinical presentations of patients are enumerated

WILLIAM S. HAUBRICH, M.D.,* *Detroit, Michigan*

From the original recognition of hemorrhagic pancreatic necrosis 70 years ago, the spectrum of acute pancreatitis has been widened to include the much commoner and less dangerous inflammatory edema of the pancreas (Fig. 1). The widespread use of the serum amylase test is responsible for this increased recognition of pancreatic disease, but contemporary reports admit an astonishing fraction of errors in clinical diagnosis.

The individual with acute pancreatitis will differ as to his locale. In a downtown metropolitan practice, especially among the lower economic strata, the patient probably will be a man, in an attack precipitated by alcoholic or dietary indiscretion. In a rural or suburban area, the female may predominate; her pancreatitis more likely may be derived from underlying biliary tract disease, notably cholelithiasis.

An individual of any age may be attacked, but the child is usually spared. Pancreatitis due to potation is commonly seen in the third and fourth decades; that resulting from biliary-tract disease more often appears in the middle-aged or elderly.

PAIN

In all patients, *pain*, usually abrupt and unremitting, usually centered in the epigastrium and boring through to the back, is the car-

*Associate Physician, Division of Gastroenterology, Henry Ford Hospital.

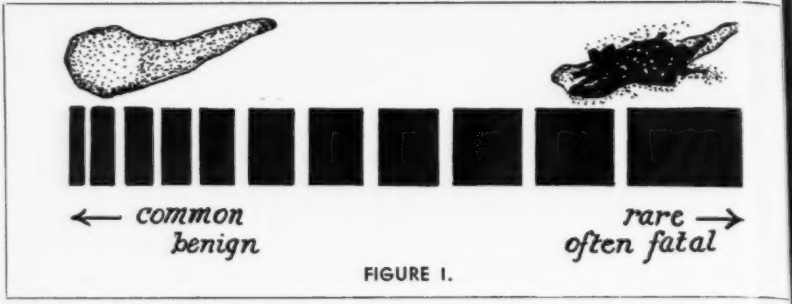

FIGURE 1.

dinal complaint. It may lack the sharp intensity of biliary or renal colic, but it is peculiarly disagreeable. Psychic aberrations, subtle or striking, are notorious in this disease. The posture in which the patient is found may be the first clue pointing to the pancreas. Often the patient finds relief by crouching with the knees drawn up and with his hand pressing the upper abdomen; he resists hyperextension of the back.

GASTROINTESTINAL SYMPTOMS

Nausea and vomiting are common; hematemesis, and later melena, may attend the pain (it is to be recalled that the distress of peptic ulcer usually disappears after hemorrhage supervenes). Shock and prostration occur with severe pancreatic necrosis, but are seldom seen with the commoner edematous pancreatitis.

If the pain is not unduly distracting, the patient often can recall previous acute episodes, usually of lesser intensity. If gallbladder disease is present, the previous attack may have been biliary colic.

Physical findings are strikingly similar to those encountered in acute free perforation of peptic ulcer. Evidence of peritoneal reaction may be less pronounced with pancreatitis, but tenderness and muscle spasm are almost always present. The more specific signs, e.g., ecchymosis in the left loin, is much too rarely seen to be of value.

DIAGNOSIS

The suspicion of acute pancreatitis must be immediate; the diagnosis may require an hour. The *sine qua non* is determination of serum pancreatic enzyme activity. There are few diseases in which the diagnosis is so dependent upon a single laboratory test. A recently described, remarkably simple and clinically reliable technic brings the important amylase test within reach of all physicians.[1]

As with all laboratory findings, the interpretation of the serum amylase level must be made in the light of the total clinical milieu. A value well within the normal range (which range must be established in each laboratory and for each technic) indicates that either the patient does not have pancreatitis *or* that the pancreas is incapable of generating the enzyme. A five-fold elevation, or greater, is strong evidence of primary pancreatitis. A result between a two- and five-fold elevation

1. Fishman, L. & Doubilet, H., *J.A.M.A.*, 163:908, 1955.

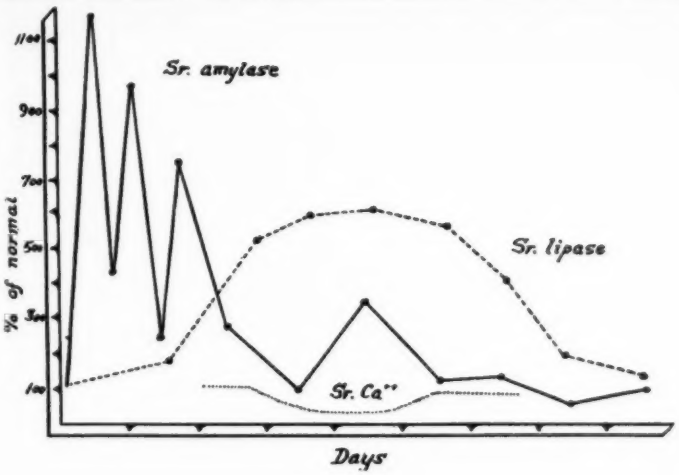

FIGURE 2.

must be interpreted with caution. In addition to pointing toward pancreatitis, such an elevation may reflect nearby but unrelated disease, such as acute free perforation in a peptic ulcer, intestinal obstruction, or peritonitis from any cause.

AMYLASE AND LIPASE TESTS

Reliance on a single chemical test is always hazardous; therefore, it is wise to measure simultaneously *both* amylase and lipase activity. The technic for serum lipase is more complicated, and the result cannot be obtained so quickly, but the determination serves well, particularly if the patient is not seen until the second or third day of illness. Elevation in serum lipase is more stable than the often ephemeral amylase. The relative values which may be anticipated can be correlated with the duration of disease (Fig. 2). The need for serial determinations is readily apparent. A depression of serum calcium level between the second and fifth day of illness is a grave prognostic omen.

Hyperglycemia, with or without glycosuria, is registered in about one third of the cases. This may be a particularly helpful sign in the advanced disease when the exocrine enzymes fail to rise.

Leucocytosis is common, but of little diagnostic value. Urinalysis and blood urea nitrogen concentration may reveal significant renal disease which can invalidate a hyperamylasemia.

A simple "scout" film of the abdomen is well worthwhile. The demonstration of air free within the peritoneal cavity indicates a perforate viscus, not pancreatitis. On the positive side, a localized collection of gas-filled jejunel loops within the left upper abdominal field is seen in half the cases of acute pancreatitis.

PITFALLS

Far and away the commonest error in failing to make the clinical diagnosis is the lack of awareness that pancreatitis may explain a case of acute abdominal disease. A specimen of blood for determination of pancreatic enzymes was never drawn without a suspicion of pancreatic disease.

Although hyperamylasemia is the rule, a normal value for serum amylase may exist in the presence of pancreatitis when a bulk of the acinar structure in the gland has been destroyed: by fulminant necrosis, or by scarring as a result of repeated previous inflammatory insults. An absence of response in serum amylase may be observed as early as the third or fourth attack in relapsing acute pancreatitis.

The blood specimen for pancreatic enzyme activity must be drawn *before* the injection of any narcotic for relief of pain. The opiates in particular are well known to cause a rise in serum amylase even in the normal subject.

COEXISTENCE OF CHOLECYSTITIS AND PANCREATITIS

In the patient with biliary-tract disease, acute cholecystitis and acute pancreatitis may coexist. The level of serum pancreatic enzymes, which should be included in the complete evaluation of acute gallbladder disease, can serve as an index of the presence or degree of pancreatic involvement. Conversely, elevation in serum bilirubin and alkaline phosphatase (usually of low order) often attend primary pancreatitis in the absence of biliary-tract disease.

In the alcoholic, acute primary pancreatitis may be superimposed upon chronic hepatocellular disease. Failure to obtain the customary liver-function tests (following control of the pancreatitis) may leave the physician unaware of less dramatic but equally serious disease in the liver.

There often is a lack of correlation between the severity of the pancreatitis and the degree of pain, physical abnormalities, and aberrations of laboratory studies in a given patient.[2] Once a diagnosis of pancreatitis is established, observation and treatment must be uniformly assiduous, regardless of what appears to be the extent of damage in the gland. A rational plan of management for the patient with acute pancreatitis recently has been detailed by the author.[3]

Finally, resting on one's laurels even after correctly identifying an acute episode of pancreatitis, is a risky repose. For the patient with underlying biliary-tract disease, recurrent pancreatitis is the rule, unless the gallbladder disorder is recognized and appropriately corrected. In a small fraction of patients, an acute pancreatitis may be a harbinger of pancreatic cancer.

2. Bockus, H. L., The Sommer Memorial Lecture, Portland, Oregon, 1955.
3. Haubrich, W. S., *Ohio State M. J.*, 51:1085, 1955.

Anesthesia

No anesthetic should be administered unless oxygen is available and there is a means of administering it under positive pressure; instruments are at hand to maintain an open airway; and a suction machine and instruments are available to aspirate the trachea, as well as to aspirate the pharynx.

Phelps, M. E., *South. M. J.*, 49:291, 1956.

Treatment of Constipation with a New Evacuant*

An account of a new combination of agents found especially effective in the correction of several kinds of inactivity of the bowel evacuation mechanism

MARK M. MARKS, M.D.† *Kansas City, Missouri*

Medication intended for the correction of bowel atonia in the post-surgical patient differs somewhat from that employed for the non-surgical. The physiological reaction to trauma, physical or psychic, may occur in one of two ways, best expressed as "fight or flight." In the digestive tract, it manifests itself in a marked lessening of activity, particularly intestinal motility. This shock reaction and recovery depends on the degree of trauma as well as the inherent ability of the subject to resume normal function. If the trauma is slight, bowel motility may rapidly return. If the operative intervention has been extensive, the lag period before the return of responsiveness of the myenteric plexus in the bowel is greater.

DANTHRON

Danthron N. F. (1,8-dihydroxyanthraquinone) has a long history of use with satisfactory results in the treatment of non-surgical or functional constipation. Its safety and effectiveness in this type of bowel dysfunction is now recognized.[1] Its action is on the large bowel, and the area of stasis in the majority of patients is in the left colon. When the lag period following surgery is pro-

*Dorbantyl® is the trademark of Schenley Laboratories, Inc., for its brand of Danthron and dioctyl sodium sulfosuccinate.

† From the Section of Proctology, Department of Surgery, Menorah Medical Center.

1. Marks, Mark M., *Am. J. Digestive Dis.*, 20:8, 1953.

longed and the bowel remains quiescent, the contents of the sigmoid and rectum become dehydrated and difficult to pass, particularly when pain at the anal outlet presents an additional obstacle. In these instances increasing the dose of Danthron to overcome inertia may result in abdominal pain and cramping, in some cases even without producing a bowel movement.

To obviate the use of harsh chemical laxatives or mineral oil during this period, non-allergenic bulking agents such as the cellulose compounds were first tried with physiological doses of Danthron. In a series of 36 patients who were given this medication following anorectal surgery, the number of impactions and frequency of need for enemas to evacuate the lower bowel were greater than with the Danthron alone.

DIDOCTYL SODIUM SULFOSUCCINATE

Dioctyl Sodium Sulfosuccinate U.S.P. (D.S.S.), a non-absorbable, non-toxic, wetting agent which when taken by mouth or instilled in the rectum reduces surface tension, was next tested. It mixes well with the contents of the fecal stream and maintains a soft stool because it prevents excessive absorption of fluid from the bowel. Following the report of Wilson and Dickinson,[2] Dioctyl Sodium Sulfosuccinate was used alone in 48 patients who had undergone anorectal surgery. The results were again disappointing, since in few of the patients was a bowel movement achieved on the third or fourth post-operative day without enemata, and at that time mushy impactions of considerable quantity were removed from all but four. Not until full bowel function returned, often 7 to 10 days post-operatively, was Dioctyl Sodium Sulfosuccinate found to be effective in these patients. Increasing the amount of the medication to 240 mgs. daily did not improve the bowel motility. It did, however, demonstrate the lack of toxicity and effect on the bowel musculature.

FUNCTIONAL CONSTIPATION

In functional constipation where bowel dysfunction has no demonstrable cause, the problem is somewhat different. Here treatment must be directed to safe bowel stimulation, along with adjustments in food and fluid intake. In such patients, both Danthron and D.S.S. may be of value. Yet each may be considered to be limited in effectiveness, since one stimulates the bowel only, while the other has no effect except to keep the stool from becoming inspissated.

COMBINATION OF DANTHRON AND D.D.S.

From the foregoing it is apparent that a combination of the two would be more valuable than either one alone; the Danthron for bowel stimulation, the D.S.S. for maintaining bowel fluid. Accordingly, Danthron and D.S.S. combined in various proportions and dosages were given to some 350 patients who had undergone anorectal surgery, 200 patients with functional constipation and cathartic habituation, and 16 patients who had undergone colonic surgery. Four combinations were tested. They were: (1) tablets containing 75 mgs. Danthron and 20 mgs. D.S.S., (2) tablets containing 75 mgs. Danthron and 40 mgs. D.S.S., (3) tablets con-

2. Wilson, J. L. & Dickinson, D. G., *J.A.M.A.*, 58: 4, 1955.

taining 20 mgs. Danthron and 30 mgs. D.S.S., and (4) capsules containing 25 mgs. Danthron and 50 mgs. D.S.S. In the end it was apparent that the tablet of 25 mg. Danthron and 50 mg. D.S.S. was the preparation of choice. The usual regimen consisted of 2 or 3 capsules daily until a bowel movement occurred. Thereafter, the dose was reduced to one capsule daily during convalescence. As normal physical activity and regular food and fluid intake were resumed, a reduction in dosage was effected consistent with proper regulation of bowel habits satisfactory to the patient. This obviously varied with each case.

RESULTS IN THE EARLY POSTOPERATIVE PERIOD

On this regimen, patients undergoing anorectal surgery usually had a spontaneous bowel movement on the third postoperative day, and occasionally even on the second. This was in marked contrast to the results in postoperative patients on other regimens, where the first bowel action was always a source of apprehension and pain. The disturbing complications which often follow this type of surgery, i.e., difficult bowel movements and painful impaction, became infrequent and when they did occur were less difficult to handle than before. Patients who required enemata and muscle relaxants had usually been habitual users of strong laxatives.

The 16 patients who had undergone colonic surgery responded to this medication with equally good results. Danthron-D.S.S. was given on the fourth post-operative day and continued until a spontaneous bowel movement occurred—usually after 5 to 7 days of medication. All responded in this manner except an elderly person with a history of colonic dystocia.

RESULTS IN CHRONIC FUNCTIONAL CONSTIPATION

The Danthron-D.S.S. combination was employed in 200 patients with chronic functional constipation, again with satisfactory results. Two capsules after the evening meal were usually sufficient, as an initial dose, to restore adequate bowel motility. A bowel movement was usually obtained on the second day, occasionally not until the third day. Dosage was thereafter adjusted to the needs of the individual patient. It is to be noted that daily bowel movements are not essential in every case. Here again, in the aged, or in those who had been on laxatives for long periods, increased doses were necessary. Careful attention to diet and fluid consumption, along with Danthron-D.S.S. resulted in improved colonic motility. As bowel tone increased, gradual withdrawal of medication to complete discontinuance was possible in most instances.

RESULTS IN THE PREGNANT AND POST-PARTUM PATIENT

The choice of a suitable laxative for the pregnant or post-partum patient also requires special consideration. The addition of milk or lactate to the diet of parturient patients may assure adequate calcium, but may also interfere with bowel action. Following childbirth, although there is no shock to the gastrointestinal tract, enforced inactivity as well as alterations in food and fluid intake may cause diminished bowel activity and constipation.

To find the effectiveness of Danthron-D.S.S. on women who had just

delivered, 5 were given 2 of the 25-50 capsules. The medication was started after their first evening meal following delivery. All had spontaneous bowel movements after the second day without enemata. One patient who required emergency rectal surgery the day after her delivery had a bowel movement on her third post-operative day without difficulty.

Since Danthron does produce a pigment that is eliminated in the urine, it was of particular interest to note that no such coloration appeared in the mother's milk, and that the stools of the infants were not affected in any way. As in the other therapeutic applications of Danthron-D.S.S., here too the medication is effective on a more rational and physiologic basis in the treatment of functional constipation.

SUMMARY

1. Various combinations of Danthron-D.S.S. have been used in the treatment of over 550 cases of constipation. These included post-surgical (both anorectal and colonic surgery), and obstetrical, as well as functionally constipated patients.

2. A capsule containing 25 mgs. Danthron N.F. and 50 mgs. Dioctyl Sodium Sulfosuccinate U.S.P. was found to be the most satisfactory combination.

3. The method of employment was to give 2 or 3 capsules after the evening meal until more normal bowel activity was re-established, then one capsule thereafter. Dosages occasionally have to be varied to meet the individual's requirements.

4. The combination of Danthron-D.S.S. is superior from a clinical standpoint to either of the component drugs used alone.

5. There is a noticeable decrease in the number of enemata required and bowel evacuation is much easier in both post-operative and non-operative patients taking the Danthron-D.S.S. combination.

6. There was no clinical evidence of sensitivity or toxicity attending the use of this preparation, nor of accumulative action or habitation. Withdrawal or dosage reduction was easily accomplished as improvement in bowel tone was achieved.

CONCLUSIONS

The combination of Danthron and Dioctyl Sodium Sulfosuccinate is a distinct improvement in laxative medication. Its use will promote bowel regularity in both operative and non-operative patients better than either of the two components alone. Dorbantyl® appears to be an excellent evacuant retaining the advantages of its component drugs with none of the disadvantages of either when used individually.

Gout and Gouty Arthritis*

Cardinal signs of inflammation in a peripheral joint of a male is the keystone to diagnosis; the response to colchicine is of therapeutic and diagnostic value

JOHN H. TALBOTT, M.D.,** *Buffalo, New York*

The management of patients with gouty arthritis is the most satisfactory of any of the common types of joint disease. If the disease is suspected and the diagnosis confirmed, treatment should be highly gratifying to patient and physician. Gout is not a rare malady and should be suspected more often by the general practitioner.

It is presumed that the disease is an inborn error of metabolism, probably with a defect in the synthesis of uric acid. This defect may not produce acute attacks for one or more decades. The first attack has appeared in the seventh or eighth decade.

Careful inquiry into the family history should be made. The male: female ratio is 20:1. The increased concentration of uric acid in the serum may cause one or more uric acid stones in the urinary tract prior to the first attack of arthritis. An interval of ten or more years may elapse between the passage of a uric acid stone and the first articular distress. There may be a transient albuminuria before as well as after the onset of joint symptoms. One-third of the patients in our series have some elevation of blood pressure.

*Researches supported in part by grants-in-aid from the Western New York Chapter of the Arthritis and Rheumatism Foundation, and from the National Institute of Arthritis and Metabolic Disease, National Institutes of Health, Bethesda, Maryland.
**Professor of Medicine, University of Buffalo School of Medicine and Physician-in-Chief, Buffalo General Hospital.

Malignant hypertension in patients with gout is rare.

The diagnosis of gout at the time of an acute attack rests heavily upon the clinical features. No diagnosis of gout is justified until after the first attack of acute joint distress. Sudden onset of moderate to severe pain is typical. Maximum intensity may be reached within a few hours. Erythema, swelling, pain, and heat in one or more peripheral joints of a male should raise strong suspicions of gout. Many times there are no warnings or precipitating factors. Precipitating agents *may* include physical injury to a joint, an upper respiratory infection, a major or minor surgical operation, dietary or alcoholic indiscretion, emotional distress or parenteral administration of one of a number of drugs. The first metatarsal-phalangeal joint is the most susceptible structure; other joints of the feet, ankles, elbows, wrists and knees may be affected. The shoulders, hips and spine are the sites of acute attacks only in those severely afflicted.

CLINICAL FINDINGS

Diagnosis of gout is made primarily on the clinical findings. The concentration of uric acid in the serum should *confirm* the diagnosis, not *make* it. Conclusive weight should rarely be placed upon a single determination of uric acid. The serum of most patients with gout, who have not received an anti-arthritic agent within the previous 48 hours, will have uric acid above 6 mg. per 100 ml. (Upper limit of normal less than 5 mg.)

Proprietary as well as ethical agents including salicylates, prednisone, ACTH and phenylbutazone cause *increase* of *excretion* of uric acid, and *decrease* of *uric acid in the serum*. Even under best controlled circumstances, an elevated uric acid does not invariably mean gout. It may occur in other types of joint disease, as well as in some with no joint disturbance.

ROENTGEN FINDINGS

X-ray changes in the bony structures are not to be expected until the disease has lasted for one or more years. The "punched out" areas adjacent to joint surfaces develop only after several attacks of acute gout. If x-ray changes are shown, the disease has probably been present for several years, a number of acute attacks have occurred, and the diagnosis could be readily made without use of the x-rays. Further, "punched out" areas in the bones occur in rheumatoid arthritis and osteoarthritis—usually considerably smaller than the osseous tophi of gout. Subcutaneous tophi in the ears or adjacent to joints were found in less than 25% of our series of patients.

The response to colchicine is of diagnostic as well as therapeutic value. Any patient suspected of having gout should be given a therapeutic trial with this dual purpose. Colchicine exerts no recognized action upon uric acid metabolism, but the therapeutic as well as the prophylactic action identifies it as a specific for gout. It exerts no analgesic action upon other types of articular distress. The other anti-arthritic agents have therapeutic value but carry with them no diagnostic implications.

Each patient suspected of suffering from gouty arthritis should have

the experience of at least one "full course" of colchicine—its administration regularly until the onset of gastrointestinal distress. Either the tablet or the granule, 0.5 or 0.6 mg. is to be taken orally, two doses every two hours, or one dose every hour. This should be continued without interruption until the onset of nausea, vomiting or diarrhea—average dose for a person of medium weight 10 or 12 tablets. When gastrointestinal symptoms develop, colchicine should be stopped and a 5 cc. dose of paregoric given every two hours until the side actions disappear. If the attack proves mild, 4 or 5 tablets may serve the purpose. The ingestion of colchicine should be regular and periodic until either the development of gastrointestinal distress *or* the subsidence of joint symptoms.

DOSAGE ADJUSTMENT

If the patient has had one full course of oral colchicine, it is our practice to treat the acute attack with a suboptimal quantity of oral colchicine plus intravenous colchicine, phenylbutazone or ACTH, respectively. If 10 tablets of oral colchicine are necessary to produce gastrointestinal distress, 6 to 8 tablets may be given at hourly intervals *but not the full amount.* The complete action is then achieved by phenylbutazone, 200 mg. t.i.d.; ACTH-gel 60 units intramuscularly; or intravenous colchicine, 1.5 mg. at a single dose. Either of these combinations has produced satisfactory alleviation of joint distress without the distressing side action of a full course of colchicine. There seems to be no justification for phenylbutazone for long-term use in patients with gouty arthritis. If intravenous colchicine or ACTH-gel is prescribed during the acute attack, a physician or a nurse is to make the injections.

ADJUVANTS

The use of colchicine with an adjuvant is particularly helpful in an attack that has been misdiagnosed or inadequately treated. After 24 hours or more of acute distress, a full course of oral colchicine may not produce the desired effects, and a second course after a lapse of 48 hours, or oral colchicine together with an adjuvant, is indicated.

General measures include rest of the affected joints, a light diet and an abundance of fluids. Fever and a leukocytosis may be present, and an acute infection suspected. If the attack is in the knee and an effusion results, the excess fluid should be aspirated and an elastic bandage applied. Activity should be encouraged as soon as distress has subsided and normal function resumed as early as possible.

A minority only of our patients are troubled with acute distress for more than one or two days per year. Many patients with moderate or severe gout who adhere conscientiously to the regimen lose no time from work over a period of several years. Just as colchicine is the drug of choice in the treatment of the acute attack, it is also the choice in the intercritical period. It has been prescribed by us as a prophylactic for more than 20 years; its toxicity has been found to be low and its value as a prophylactic high. If the affliction is mild and the patient has had an occasional attack only, one tablet (0.5 mg.) is given on three or more days each week, those moderately afflicted one or two tablets each day of the year; those severely afflicted

two to four tablets daily, up to a point of gastrointestinal tolerance. There are a few patients with excellent results. No patient with moderate or severe gout should be off of colchicine for any length of time. Intolerance to colchicine during the acute attack as a result of previous prophylactic therapy, has not been observed. An obvious gain from the daily ingestion of colchicine for those moderately or severely afflicted is the advantage in having started a course at an early stage of an attack, if acute articular symptoms develop.

Colchicine has no effect upon uric acid metabolism. Reliance must be placed upon other agents to achieve this effect.

URIC ACID CONTROL

During the past six years, Benemid has been available to complement the action of colchicine. Benemid increases the excretion of uric acid, with a resultant decrease in the concentration of uric acid in body fluids. This action may be demonstrated within a few hours after the ingestion of the drug, with a maximum effect within a few days. The action in most patients keeps up so long as the drug is given daily. Patients severely afflicted have been placed on 2 gm. of Benemid daily for one or more years. Thereafter, the amount has been reduced to 1 gm. a day in divided doses with continued excellent results. Patients mildly or moderately afflicted may take 1 gm. of Benemid daily for one or more years and the amount is then subsequently reduced.

Benemid and colchicine should be used at the same time. The prophylactic value of Benemid *and* colchicine has been amply demonstrated over the past six years. The toxicity of Benemid as of colchicine, is unimportant. We do not believe that the incidence of uric acid stones has been materially influenced by the addition of Benemid to the gout armamentarium. We give Benemid to patients irrespective of a past history of passage of uric acid stones.

Along with Benemid, an abundant fluid intake should be stressed. The advantage of an alkaline urine in increasing solubility of urates is theoretical. We have seldom recommended sodium bicarbonate. Since uric acid probably takes years to be deposited in macroscopic quantities, in and about the joints, a prolonged period of time is necessary to achieve a reversal. It is not surprising then, that clinical improvement is demonstrated early following institution of the Benemid and colchicine regimen, while objective evidence in the bones and soft tissues comes later.

NUTRITION

As to dietary management of the gouty patient, most important is the regulation of the total calorie intake in order to maintain a state of optimum nutrition. Overweight patients should reduce. Avoidance of high fat foods is obvious. A diet low in purines, but balanced in regard to the other foods, is suitable for gouty patients if other phases of the gout regimen are maintained. We permit our patients a liberal portion of protein substances each day in the year, if this is their wish. Purine restriction should be maintained even though Benemid is administered. The food substances high in purines such as liver, kidneys, sweetbreads and anchovies are prohibited, but usually this entails no hardship to

the patient.

An abundant intake of water is highly desirable. Milk or sweet drinks should be kept at a minimum if a patient tends to be overweight. Most patients with gout are able to remain symptom-free while enjoying a temperate amount of alcoholic beverages if other anti-gout measures are kept up.

Unsightly tophi and those that interfere with the function of joints are removed surgically, urates removed by curettage. The possibility of post-operative gout necessitates pre- and post-operative medication with colchicine. Gouty joints are not prone to infection and even before the days of antibiotics, post-operative infection was not a problem. The incision heals satisfactorily and the results are gratifying.

SUMMARY

The diagnosis of gout should be based largely upon clinical findings. A family history of the malady, the passage of a uric acid stone, the detection of albuminuria or the observance of hypertension are ancillary aids. An elevated concentration of uric acid in the serum, attention being given to the administration previously of anti-arthritic agents, as well as x-ray changes may be helpful aids. Subcutaneous tophi are not to be expected during the first years after onset of acute articular distress.

Oral colchicine is the drug of choice in the treatment of the acute attack. Combinations of submaximal quantities of oral colchicine with adrenal steroids, phenylbutazone or intravenous colchicine may be instituted if the patient has had the experience of one "full course" of oral colchicine.

The prophylactic value of colchicine and Benemid taken daily in the management of the intercritical period has been demonstrated amply. Colchicine is of value in preventing recurrence of attacks of acute distress; Benemid is a powerful agent in eliminating uric acid from the body. A balanced diet with an optimum calorie intake permits a patient to live essentially a normal life. A liberal portion of proteins daily is permitted. High-purine substances only are prohibited. The fluid intake should be high.

If these suggestions are followed, the patient with gout is able to live essentially a normal life and the statement made in the introduction substantiated, i.e., gout is the most satisfactory joint condition to manage, for the physician and the patient.

Diabetes: The Patient, The General Practitioner, and The Ophthalmologist

Rapid refractive changes may be the first subjective sign of diabetes; ocular complications are usually controlled by proper dietary control and regulation of insulin

LOUIS W. STATTI, M.D.,* *Pittsburgh, Pennsylvania*

Regardless of who makes the diagnosis of diabetes, the cooperation of patient, family physician and ophthalmologist is very important. With longer life for diabetics, many early and late ocular complications are seen. With proper control, vision can be retained and other ocular complications avoided or retarded for many years. Retinal damage from hemorrhage, exudates and degeneration constitute the most serious diabetic ocular problem. This damage is inevitable and is usually progressive, leading to various degrees of visual loss.

*Senior Ophthalmologist, St. Francis & St. Joseph Hospitals; Consulting Ophthalmologist, U.S. Public Health Service.

Every diabetic should have a complete ophthalmic survey within a short while after the diagnosis of diabetes is made. A record of the report is kept by the ophthalmologist and a copy should be supplied to the physician. Diabetes is a metabolic disease in which the retina, cornea, optic nerve, accommodation, lens, refraction, iris, extra-ocular muscles, and intra-ocular pressure may be involved. The disease is more frequent in women than in men and in persons over forty. Obesity and heredity are definite factors.

The more frequent ocular manifestations and complications will be described.

LENS

The true diabetic cataract is rare and is almost always seen in young diabetics. The opacities are subcapsular and snowflake in appearance. The opacity matures very rapidly. Senile cataract is more frequent in diabetics than in non-diabetics. The incidence of cataracts increases with the duration rather than with the severity of the disease. Visual results following cataract surgery in the diabetic depend on the presence or absence of retinopathy and whether or not the macular area is involved. The true diabetic cataract that occurs in young people is more easily removed by linear extraction. Cataract surgery in the diabetic with senile cataracts offers no particular problems over the ordinary cataract extraction. The patient is usually hospitalized for a few days before surgery to be certain that the diabetes is under control. No insulin is given on the day of operation. *The visual prognosis should always be guarded in all cases where the retina has never been examined due to the lens opacity present.*

OPTIC NERVE

Optic neuritis is rarely seen as a complication of diabetes. More often noted is optic atrophy, but this also is largely associated with arteriosclerotic changes. I have seen several diabetics with progressive primary bilateral optic atrophy, but this change is probably on a vascular basis.

REFRACTION

Sudden changes in refractive errors should make one very suspicious of diabetes. As the blood sugar concentration varies, the refractive state of the eye may change from hyperopia to myopia and vice versa. Regardless of the cause sudden changes in refractive errors call for a blood sugar examination or at least a urinalysis. Glasses should not be prescribed until at least 3 to 6 weeks after the refractive state has been stabilized. These refractive changes occurring in a known diabetic will also give a clue as to whether or not there has been a relapse, or if the treatment has been too severe.

EXTRA-OCULAR MUSCLES

Diplopia is not a very common symptom; when it does occur, usually the sixth nerve is involved. Double vision may be the first symptom. Recovery is slow, usually taking about three months. During that time, the patient is to wear an occluder over either eye alternately. If the muscle imbalance does not clear up, muscle surgery should not be done until at least one year after appearance of symptoms.

IRIS

Newly-formed vessels may be noted about the sphincter of the iris. This condition is called rubeosis iridis diabetica. The presence of these vessels signifies a poor prognosis. Secondary glaucoma, anterior-chamber hemorrhages, poor response to eye medication, and any attempt at surgery will result in certain loss of the eye.

RETINA

The largest group of complications is associated with diabetic retinopathy. *They are directly related to the duration of the disease and not to its severity.*

The retinopathy of diabetes can occur as a separate entity, although in patients over forty, it is almost al-

ways associated with hypertension, arteriosclerosis and renal damage. The characteristic changes are usually bilateral, and are found in the area between the upper and lower retinal temporal vessels and in the area about the optic nerve. The disk is always normal in appearance; there is never any sign of edema or swelling. The veins are distended and are usually darker than normal. *Small, round micro-aneurysms and punctate hemorrhages are noted along the course of the superior and inferior temporal veins; these changes may be the earliest and only signs of diabetic retinopathy.* From this point, the retinal changes vary a great deal depending on the duration of the disease and its association with arteriosclerosis, hypertension, or renal disease. Visual disturbances depend on the degree of involvement of the macular area.

There is no treatment for diabetic retinitis aside from the treatment of diabetes itself. It has been assumed that maintaining a nearly normal blood-sugar level will cause the hemorrhages and exudates to disappear or be absorbed. What really happens is that the retinal changes undergo periodic remission and exacerbations. Many ophthalmologists, including myself, are using rutin, ascorbic acid, hesperidin, vitamin P complex, testosterone, and Hepa-desicol; but the value of any of them is highly problematical. *There is no doubt that the patient who maintains good control of the disease at all times will present fewer problems than the patient who fails to control it.* In some of the advanced cases associated with vascular disease, the treatment should be directed toward the vascular system as well as the diabetes itself.

CONCLUSIONS

1. Rapid refractive changes may be the first subjective sign of diabetes.

2. Ocular paralysis with diplopia lasts two or three months, then clears up completely.

3. New vessel formations on the iris surface (rubeosis iridis diabetica) is a serious complication; the prognosis is poor, both for vision and retention of the globe.

4. Lens changes in the older diabetic are treated as ordinary senile cataracts with the same results.

5. Optic nerve changes (atrophy) are due to vascular changes rather than to increase in blood sugar.

6. The degree of diabetic retinopathy is related to the duration of the disease and not to its severity. Visual damage depends on macular involvement.

7. Treatment of the ocular complications of diabetes is the treatment of the diabetes itself. Proper dietary control and insulin regulation is the only effective treatment. The value of rutin, hesperidin, ascorbic acid, vitamin P complex, testosterone, and Hepa-desicol is problematical.

8. The physician who assumes the treatment of the diabetic must accept the responsibility of giving his patient not only the benefit of his experience but also the latest scientific and clinical knowledge available to him from all sources.

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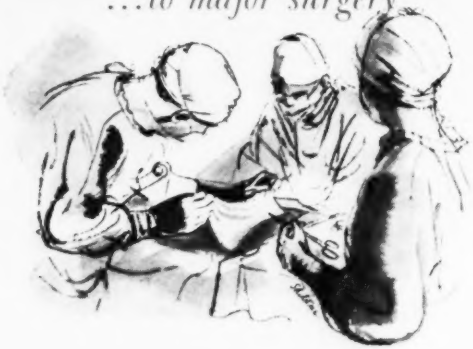

Surgical Treatment for Coronary Artery Disease

Demonstration of a very low operative mortality justifies the early application of the Beck operation to a number of patients with coronary disease

BERNARD L. BROFMAN, M.D.,* *Cleveland, Ohio*

The greatest single problem confronting our profession today is that of the catastrophic consequences of coronary artery disease. By its very nature, this process is progressive and eventually fatal. Its death toll in this country is fast approaching a half-million per year.

In a fundamental sense, angina pectoris, myocardial infarction, and the fatal heart attack merely represent varying responses of the heart to the occlusive process in the coronary arteries. However, there is no obligate relationship between the degree of reduction in coronary inflow and the consequences thereof[1]. The essential role of intercoronary arterial channels in preventing the catastrophic consequences of coronary artery disease is evidence of the protection afforded by a more equal distribution of the available coronary inflow.[2] If this collateral circulation is adequate, complete coronary artery occlusion may occur without significant muscle damage. The fate of the myocardium, and of the patient, depends upon the amount of blood available beyond the stenosis or occlusion of the coronary artery. The natural development of intercoronary communications is most frequently inadequate.

Surgical operation has proved to be safe and effective in providing the

*Director of Cardiovascular Research, Mount Sinai Hospital.

1. Yater, W. M., et al., *Am. Rev. Tuberc.*, 71:904, 1955.

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patient with coronary artery disease with a more adequate distribution of coronary inflow to the myocardium. In the last 77 patients operated on by Dr. Claude Beck in Cleveland, mortality associated with operation has been *zero*. Long-term follow-up has demonstrated increased longevity in such patients; nine out of ten patients evaluated six months to five years after operation have little or no pain and are economically productive.

THE BECK I OPERATION

This report is based upon observations on 500 patients evaluated as candidates for the surgical treatment of coronary artery disease since January, 1951. To date, the Beck I operation has been performed on 200 patients; some 150 patients have been rejected for operation, usually because of extensive muscle damage and myocardial failure. Another 12 patients, accepted for operation, had died of their disease while awaiting hospitalization. One patient died suddenly 12 hours preoperatively. Some 130 others, accepted for operation, have refused operation for various reasons or have delayed hospitalization. This group will eventually serve in a control series.

The Beck I operation has achieved a low operative mortality and such clinical benefit as to justify its increased use in patients with coronary artery disease. The details have been reported elsewhere.[3] Briefly, the operation consists of abrasion of the parietal pericardium and epicardium, partial ligation of the coronary sinus, instillation of asbestos, and mediastinal fat to the heart—all done as a brief one-stage procedure.

3. Beck, C. S., & Leighninger, D. S., *J.A.M.A.*, 159:1264, 1955.

INDICATIONS FOR OPERATION AND CLASSIFICATION OF PATIENTS

The one indication for operation is a positive diagnosis of coronary artery disease. The achievement of low operative mortality now justifies its application to patients with very "early" disease, before extensive myocardial damage has occurred. The operation need not be withheld until the patient has had a myocardial infarction; early operation can reduce the 10-20% mortality of the first infarction. Operation may be of benefit even after several episodes of infarction, but little can be achieved if the heart has begun to dilate.

In classifying patients with coronary artery disease, consideration must be given to the degree of myocardial degeneration and to the progression of the occlusive process in the arteries. The following preoperative classification has been found useful:

Group 1. Patients with mild symptoms. Usually under 50 years of age. May have small infarct and/or mild angina.

Group 2. Moderately advanced disease. Moderate to severe angina. May have one or more infarcts. Normal heart size.

Group 3. Salvage cases. Extensive muscle damage. May have large heart and congestive heart failure. Status anginosus. Certain contraindications.

The great majority of patients operated on are in Group 2. The percentage in Group 1 is increasing. In members of families with a bad coronary history, operation should be considered at the earliest evidence of the disease.

CONTRAINDICATIONS

Acute myocardial infarction, or even suspicion of impending infarction, precludes operation for at least four to six months. The dangers of operation during the acute stage are obvious, and the delay allows time for development of compensatory mechanisms. Younger patients with rapidly progressive symptoms, particularly those without previous infarction, are prone to develop areas of ischemia during or immediately after operation. These hearts tend to develop ventricular fibrillation,[4] so that an impending medical death becomes a surgical mortality.

Cardiac enlargement and evidence of congestive heart failure constitute a relative contraindication to operation. However, in 20% of the patients operated on in this series, the fluoroscope showed the left ventricle to be enlarged. At least one-fourth of these patients had objective evidence of early congestive failure. It is too late for much benefit in such patients, but they tolerate operation quite well.

Severe hypertension, or any other disease which limits life expectancy, contraindicates operation. A moderate degree of blood pressure elevation was present in 25% of the patients operated on.

AGE AND SEX

In this series of 200 patients operated on, the age range was 27 to 72, average 48 years. Generally, patients over 65 carry an increased operative risk, but operation is not denied such a patient if his tissue age justifies it. Twenty patients in this series were over 60. In patients under 40, the disease is usually rapidly progressive, which tends to make operation hazardous. However, operation was carried out on 30 patients under 40 years of age. Less than 10% of the patients operated on were females.

SYMPTOMS AND DURATION

In the present series, 75% had suffered at least one clinically proved myocardial infarction. Two or more infarctions had occurred in 20%. Angina pectoris, from very mild to complete status anginosus, was present in 95% of the patients operated on.

The duration of symptoms, no indication of the severity of the disease, ranged from 4 months to 13 years, average 2.9 years. In general, patients with a longer duration of symptoms appeared to tolerate operation better.

PREOPERATIVE MANAGEMENT

In patients with coronary artery disease, extensive diagnostic procedures do *not* constitute good medical management and actually may be dangerous. Electrocardiographic exercise tolerance and anoxemia tests should be performed only when the diagnosis is in doubt. In a patient with a critically compensated coronary circulation, undue stress may produce catastrophic consequences. In a patient with electrocardiographic evidence of old infarction such tests are contraindicated, and, in a patient with typical symptoms, a negative test in no way alters the diagnosis.

The preoperative hospital stay should be short, usually less than five days. Exhausting tests are particularly contraindicated on the day before operation. Anxiety and apprehension have a deleterious effect, such patients having a greater operative risk, presumably from a low-

4. Brofman, B. L., et al., *Circulation*, 13:161, 1956.

ered fibrillation threshold.[4] Operation should be delayed until anxiety is allayed or at least reduced.

PREOPERATIVE DIGITALIZATION

Prior to surgery, all patients are completely digitalized. This is done even though there is no evidence of congestive failure. Digitalis *decreases* myocardial irritability during operation. The various ventricular and supraventricular arrhythmias associated with cardiac surgery are significantly diminished by adequate digitalization. Specific beneficial inotropic and chronotropic effects are evident. In inadequately digitalized patients, annoying sinus tachycardias can be controlled by supplementary intravenous digitalis administration. The routine use of digitalis has been an important factor in achieving a remarkably low operative mortality.

MANAGEMENT DURING OPERATION

During operation, the surgeon, the anesthesiologist, and cardiologist must observe close teamwork. Although the surgeon assumes the major responsibility, the cardiologist must be in command. Continuous electrocardiographic monitoring is essential. Various pharmocological agents and rest periods are judiciously applied as indicated. In most cases, the operation proceeds from beginning to end without interruption. The duration of operation, within certain limits, is in no way a consideration in the successful outcome. With good anesthetic management, oxygenation and maintenance of circulation during operation should be as adequate as that prior to induction of anesthesia.

A mechanical respirator (Rand-Wolfe) is always used. Oximetry and direct arterial saturation studies during operation have demonstrated the maintenance of a constant high level of arterial saturation throughout operation. Probably more important than the level of arterial O_2 saturation, is the avoidance of marked variations in oxygenation (such as have been demonstrated by oximetric studies during irregular intermittent manual compression of the bag). Sudden variations may lead to ventricular fibrillation.[4]

During cardiac manipulation various ectopic beats occur. Especially during epicardial abrasion, frequent ventricular premature beats and even runs of ventricular tachycardia appear, subsiding immediately when abrasion ceases. Only rarely do these ectopic beats persist. There has been no instance of persistent ventricular tachycardia or fibrillation associated with this manipulation. So-called anti-fibrillatory drugs should not be used routinely. Procaine amide or quinidine should not be used empirically, in view of the myocardial depression produced. Only rarely is it necessary to use small amounts of procaine amide for a particularly irritable heart.

During operation, especially soon after induction of anesthesia, moderate bradycardia and hypotension may occur. Small doses of atropine sulfate (0.2 mg. intravenously) prevent a potentially dangerous slowing of the heart. Whenever moderate hypotension occurs, a rest period is observed and the lungs are well inflated. A small dose of atropine may then be tried. If hypotension persists, a gentle vasopressor (mephentermine, 7.5 mg. to 15 mg. intravenously) is given. Frequently this produces a sustained rise in pres-

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sure; occasionally repeated doses are required. Rarely a more potent vasopressor drug (norepinephrine) is required. Generally, there is little fluctuation of blood pressure during the operation.

OPERATIVE MORTALITY

Of the 200 patients operated on since January, 1951, there were 11 deaths associated with surgery (two during operation, nine in the early postoperative period), for a total mortality of 5.5%. Careful selection of patients and improvements in medical and surgical management have resulted in a progressive lowering of operative mortality, as evidenced by the last 77 consecutive operations to date without a death. At least 20 of these 77 patients were salvage cases. However, in every instance symptoms had been fairly stable for a few months prior to operation. Recognition of the limitations of operation has prompted judicious delay in seriously ill patients. If a catastrophe is imminent, an ill-timed operation will only hasten it. A delay of a few months permits time for stabilization and greatly enhances the achievement of a good result.

COURSE OF PATIENTS AFTER OPERATION

The immediate postoperative course is remarkably uneventful, even in those patients who appeared severely ill before operation. Rarely does the patient complain of pericarditis pain (even though the postoperative electrocardiogram most frequently shows such a configuration). Small left pleural effusion occurs often, but only rarely requires thoracentesis. Evidence of pericardial effusion is rare. In no case has long-term follow-up revealed evidence of deleterious effect of the operation itself. Compression of the heart by a pericardial scar has not occurred.

In 25% of the patients there is almost immediate improvement in symptoms, so that a few days following operation they say that a given amount of exertion no longer causes pain. Generally, following discharge 8 to 12 days after operation, patients are encouraged to return to at least part-time work in four to eight weeks.

In the great majority of patients there is progressive improvement over a course of one to six months after operation. Occasionally, a patient may show no improvement for a few months, then a period of rapid subsidence of symptoms.

Long-term follow-up of the first 100 patients alive at this time reveals that at least 15 of them have had one or more severe "attacks" requiring hospitalization. However, in only three instances was there definite evidence of transmural myocardial infarction. In each case the patient recovered and returned to work with no worsening of his symptoms. The other 12 have had one or more bouts of severe precordial pain (one patient has had five) with transient T wave changes in the electrocardiagram. Usually, the pain subsided rapidly and work was resumed in one to four weeks.

In only 10% of the patients did long-term follow-up reveal no improvement. In some of these there were such complications as severe narcotic addiction, psychoses, and cerebrovascular accident.

Remarkably enough, three of the patients who had evidence of early congestive heart failure prior to

operation appeared to be much better compensated after operation. One of these, who had previously required weekly mercurial injections, has now gone eight months without injection.

The very nature of coronary artery disease is such that *objective* methods for evaluation of medical or surgical treatment are of little value. Reliance on the electrocardiogram or the ballistocardiogram is unrealistic. Generally speaking, each patient serves as his own control.

LONGEVITY

Long-term follow-up has been carried out on the 137 consecutive patients discharged over a period of six months to five years ago (average two years). The expected mortality in such a group over this period would be 30%, or 41 dead.[5] Actually 18 are known or assumed to be dead, a mortality of 13.1%. Thus, even at this early period, life expectancy can be shown to be increased by operation. Since operation does not prevent the occlusive process in the coronary arteries, a period of symptomatic improvement may be terminated by overwhelming occlusion and death. Such was the case in 50% of the patients who died six months to five years after operation.

PRESENT STATUS OF SURGICAL PATIENTS

Of the 100 consecutive patients who were alive and could be evaluated over a six month to five year follow-up period, 45 are completely free of heart pain. Another 45 say they have considerably less pain than before operation. Thus, 90% have symptomatically excellent results.

By the same token, 42 are able to work with no limitations, while 48 are better able to work with some limitations. Thus 90% are economically productive. (Prior to operation only 45% had been able to work half-time or more.)

SUMMARY AND CONCLUSIONS

The Beck operation for coronary artery disease is a safe and effective method for providing a more adequate supply of arterial blood to the heart. Operation is indicated in patients with a positive diagnosis of coronary artery disease unless there is a specific contraindication. The operation should not be considered as merely a salvage procedure. Best results are obtained by operating early in the course of the disease.

In the last 77 patients operated on, the mortality associated with operation has been zero. The over-all mortality for 200 patients operated on since January, 1951 is 5.5%. Long-term follow-up reveals a significant increase in longevity for patients operated on. Furthermore, 90% were back at full-time or part-time work with little or no limitations.

5. Lindgren, I., *Acta Med. Scandinav.* (supp. 243), 138:1, 1950.

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Venous Thrombosis and Trypsin

Deep venous thrombosis may be an inflammatory reaction as in thrombophlebitis, or a bland process due to venous stasis as in phlebothrombosis

BERT SELIGMAN, M.D.* *Toledo, Ohio*

Venous thrombosis secondary to inflammation initiated by bacterial invasion of the vein wall, or to trauma, or chemically induced, is termed thrombophlebitis and may involve the superficial or deep veins. The superficial process presents signs and symptoms of a localized cellulitis; the deep involvement produces pain, fever and swelling commensurate in severity with pathology. Venous clotting because of increased coagulability of the blood and venous stasis is called phlebothrombosis.[1] It has so few signs and symptoms that the first indication of its existence may be a pulmonary infarct. Whether the process originates as a thrombophlebitis, or whether the phlebothrombosis is converted to a thrombophlebitis with a complementary inflammatory component, treatment is aimed at restoration to normal physiology.

CAUSATIVE FACTORS

The inflammatory component of any disease process may be induced by trauma, bacteria, or chemicals. Each of the three produces the same end result—irritation with pain, fever, swelling, redness and interference with function. In superficial thrombophlebitis, the inflamed vein can be visualized as a pencil-like, hard mass, surrounded by an area

*Chief of Service, Vascular Surgery, Flower Hospital.

1. Ochsner, A., *J.A.M.A.*, 132:827, 1946.

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[1]Busse, E.A.: Treatment of Rheumatoid Arthritis by a Combination of Cortisone and Salicylates. Clinical Med. *11*:1105.

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of redness and edema and tender to touch. The possibility of an embolus to the lung is very remote, though if the great saphenous vein at its entrance into the common femoral vein is involved, embolism may occur. Occasionally the phlebitis extends from the superficially diseased vein into a communicating or perforator vein from which a thrombus can break off and be carried to the lung—rarely a lethal process. Deep venous thrombosis, the phlegmasia alba dolens associated with childbirth, usually presents with pain, fever and swelling, with pain on plantar flexion, inguinal and/or calf tenderness, and pain on pressure over the medial aspect of the tibia. A proximal coagulation thrombus can form here providing a tributary vein enters the main vein just above the site of the fixed thrombus. In suppurative pelvic thrombophlebitis, general spread of septic emboli can occur, and here death would not be due so much to the emboli, which are usually very small, as to the infectious process which could conceivably be seeded throughout the body with resultant profound toxemia. Concomitant lymphangitis—mild, to moderate, to severe—is in no small measure responsible for the lymphedema of a phlebitic process, with variable but likely permanent disability.

TREATMENT

For patients with superficial thrombophlebitis, three inch blocks are placed under the foot of the bed. If the disability is not very great, five minutes for walking (not shuffling) is urged out of every hour. As the disease subsides, four inch Ace with rubber is applied to the affected extremity during the day. It is applied very tight, just short of producing numbness of the toes. It is left off at night. Pillow elevation of the leg is not used, nor are hot compresses applied to the inflamed extremity. Anticoagulants, particularly Tromexan, have been used in cases unduly perverse. Trypsin*, a proteolytic enzyme secreted by the pancreas, has been consistently producing a salutary effect in thrombophlebitis. The almost completely inactive trypsinogen is converted to trypsin in the presence of enterokinase, present in succus entericus.

TRYPSIN

Trypsin has been extensively utilized both in laboratory and experimental problems and in clinical research. Its exact mode of action has not been ascertained, but it has been demonstrated to exert an anti-inflammatory effect as indicated by rapid and sustained subsidence of pain, fever, edema and redness and return to normal of the sedimentation rate. Martin[2] has suggested that inflammation produces a mechanical block in the involved capillaries by chemical action which is initiated by cellular disruption. Inhibitors of proteolytic enzymes assume the ascendant role thereby allowing the inflammatory reaction to worsen. Cellular porosity is decreased, intercellular fluid is trapped, hydrostatic pressure increases, a vicious cycle is set in motion with each factor previously present increasing until the damaged capillaries are finally sealed off and biological continuity is disrupted. This explanation is oversimplified, but it serves to direct our clinical thoughts into laboratory procedures which require a technical knowledge of physical chemistry. As in any re-

*Parenzyme® supplied through the courtesy of the National Drug Company, Philadelphia.

2. Martin, G. J., *Exper. Med. & Surg.*, 13:2, 1955.

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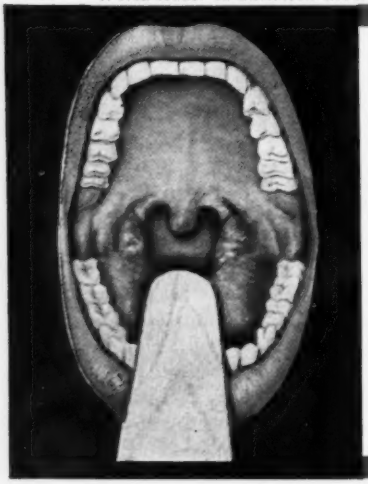

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and "...often useful in the treatment of infections due to staphylococci resistant to one or several of the regularly used antibiotics"

"side effects . . . [are] notable by their absence"[1]

1. Carter, C. H., and Maley, M. C.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 51.

action, be it chemical or biological, the status quo cannot be maintained. Without the intervention of one of several factors, amelioration cannot occur, thus allowing the reaction to continue to its ultimate—tissue death. The introduction of a proteolytic enzyme, trypsin, which is adsorbed at the inflammatory site primarily halts the reaction, and secondarily reverses it so that cellular porosity is increased, intercellular fluid leaves the capillary, and hydrostatic pressure approaches more normal levels thus allowing biologic continuity to be restored. The end result in this instance is the return to the inflammatory area of a circulation that is adequate to maintain life and further the process of repair.

ALLERGIC RESPONSES

In treating deep venous thrombosis, one has not the advantage of seeing the pathologic process and its response to therapy. Ilio-femoral thrombophlebitis usually causes symptoms severe enough to necessitate absolute bed rest, foot of bed up on three inch blocks, codeine and ASA as indicated to allay pain or fever, and trypsin intramuscularly administered. Trypsin can be suspended in normal saline, sesame oil, gelatin and many more vehicles. It can produce an allergic response all the way from hives to angioneurotic edema in susceptible subjects. Sesame oil is capable of eliciting an allergic response. The combination of the two can produce a local or systemic flare up[3] in 10% of the patients treated. Some of the reactions ascribed to trypsin may be due more to errors in injection technique rather than to the drug, or the vehicle, or both. The drug is not for intravenous or subcutaneous administration.

3. Seligman, B., *Angiology*, 6:208, 1955.

TECHNIQUE OF INJECTION

On the upper outer quadrant of the buttocks, a circle the size of a silver dollar is outlined and divided into four quarters. Whether given once, twice, three or four times daily, the injections are given into alternate buttocks and, since the subdivisions are numbered 1, 3, 5, 7, on the one side and 2, 4, 6, 8, on the other side, no patient receives consecutive injections into the same site or side. This technique reduces reactions to a minimum. Even more important, each injection should be made through the subcutaneous fat into the gluteal muscle. It is not coincidence that the majority of reactions have been observed in obese persons.

Whereas all early patients received trypsin in sesame oil, a 5% or 10% gelatin solution is now used, each cc. containing 5 mg. of trypsin. Some are given one injection daily, others two injections. If hives, local or generalized, appear, or if edema of the fingers and toes, burning of the mouth, nausea, vomiting or general discomfort occurs, the patient is given a Chlor-Trimeton tablet, 4 mgs. by mouth, and in 30 minutes the trypsin is carefully administered intramuscularly. Deep venous thrombosis usually occurs in *one* extremity, but thrombophlebitis in the deep vessels of one leg and a silent phlebothrombosis in the other has been observed, so both lower extremities must be carefully examined at least once daily; in seriously ill patients, morning and night.

As the temperature and sedimentation rate approach normal, the pain and tenderness over the af-

fected vein gradually diminishes, the sense of fullness in the adductor region as well as in the calf becomes less, and the edema, particularly while the patient is at bed rest, considerably lessened. Gradual ambulation is ordered and a four inch Ace with rubber is applied to one or both legs as indicated, worn to tolerance, for control of the tendency to develop orthostatic edema. By compressing the skin and subcutaneous tissue, the superficial veins, the great and small saphenous, are "splinted," and the tendency to form varicosities is diminished considerably. Also, by forcing the venous return from the lower extremity to return by way of the deep venous system, venous stasis is reduced and existing channels can dilate and further facilitate the process.

REHABILITATION

Once the acute process has subsided and ambulation has been achieved, a definite program must be instituted to rehabilitate the patient swiftly and safely. The four inch Ace with rubber is worn during the day, removed ad lib, but replaced when activity is resumed. The bed remains elevated 3 inches at the foot. Walking in a normal fashion five minutes out of every hour is continued, and rocking back and forth on the toes and heels to contract the calf muscles is encouraged. If the patient is afebrile and pain-free, analgesics and trypsin are omitted. If edema persists or worsens as ambulation is increased, in addition to using the Ace bandage, a 200 mg., low-salt diet may be given; and, since trypsin decreases tissue fluid viscosity by softening of induration, decrease of edema, it may be given once, twice, or three times weekly, depending upon the response elicited.

RESULTS

The treatment program outlined has been utilized since September, 1953. Almost 50% of those so treated were ambulatory patients. Those hospitalized averaged nine days on trypsin therapy; the non-trypsin group's hospital average was 19 days.[4] Formerly when examination indicated either a sublethal pulmonary embolism or upward extension of the thrombotic process, interruption of the indicated deep vein (usually the superficial femoral vein, though occasionally the inferior vena cava) was carried out.

The trypsin-treated group has required no surgical attack to forestall embolization. This does not mean to imply that sublethal pulmonary embolism has been obviated by trypsin. Three patients, while under trypsin therapy, developed a sublethal pulmonary embolus, the first after eight days of treatment, the second after three days and the third 24 hours after the first intramuscular injection of trypsin in sesame oil. The first patient was perilously ill; the other two, while presenting the classic signs, symptoms and x-ray findings of pulmonary embolus, were not prostrated by the disease. Trypsin was continued, and recovery ensued.

It cannot be stated that all patients who have been subjected to a superficial femoral vein ligation and division will develop a heavy leg with edema, secondary varicosities, pigmentation, cellulitis, ascending lymphangitis, fibrosis, induration, eczema and possibly ulcer. Patients

4. Seligman, B., *Ohio State M. J.*, May, 1955.

under good medical treatment have had the same sequence of events. Also, a leg has been operated on and becomes to all intents and purposes the same in appearance and function as the opposite leg. Follow-up studies on trypsin-treated patients cover only three years, so it is much too soon to become blatant about results. The more than 250 patients have as a whole extremities of more normal appearance than non-trypsin treated extremities. It is anticipated that some edema will be present in practically all postphlebitic extremities; the appearance or non-appearance of the other stigmata will be looked for in future examinations.

CONCLUSIONS

1. Treatment is dependent upon the severity of the process, and its location, as either superficial or deep.

2. Bed rest, or hospitalization, as indicated, foot of bed up on 3" blocks, codeine and ASA for pain and/or fever, 4" Ace with rubber, anticoagulants and trypsin intramuscularly are used as indicated.

3. Trypsin exerts an anti-inflammatory effect related to biologic continuity.

4. Trypsin treated patients seen in follow-up appear to fare better than non-trypsin treated patients.

NOW AVAILABLE

Dissecting Aneurysms of the Aorta

Surgical intervention to produce re-entry of the dissected channel may prove to be the preferable procedure for the elimination of these vascular insufficiencies

D. JOE FREEMAN, M.D., *Madison, Wisconsin*

Dissecting aneurysm incidence is estimated to be 0.2 to 0.4% of all autopsied cases. In the last fifteen years at the Cincinnati General Hospital, the incidence has been 0.22% of autopsied cases. This material has been obtained from clinical and necropsy data on 23 cases at this hospital from 1938 to 1953, and from over 400 cases described in the American and English literature since 1943. Of the latter group, only 161 cases were presented in sufficient detail to be included. Among the 23 Cincinnati Hospital necropsy cases, dissections were found as incidental conditions at necropsy in three patients. Of the remaining 20, three were excluded because of incomplete data. Hence, a total of 178 cases have been included in this report.

The chief factor for long survival is spontaneous re-entry of the dissected channel at or near its distal end. Other factors include: absence of hypertension; localization distant from the heart; intimal rupture distant from the heart; extensive dissection, particularly if it originates close to the heart; and absence of major involvement of important aortic branches, particularly the coronary arteries.

Perhaps six attempts at surgical intervention have been made. Three probable dissecting aneurysms associated with coarctation (one of the right subclavian artery) have been

treated by resection; however, the pathological reports do not establish the nature of the process. In two of the attempts at surgical intervention, cellophane wrapping of the aorta was employed; the other attempt will be discussed here. These data demonstrate that spontaneous re-entry of the dissected channel at its distal extent is nature's best method for healing these aneurysms. How could one better help nature in this task than by surgically producing a re-entry? Only one such attempt has ever been made. In 1935, Gurin et al., reported a case of complete arterial obstruction to the right leg which was relieved by entering the external iliac artery on its uninvolved side, and incising the intima and media within the dissected channel on the opposite side, thereby producing a distal re-entry. The patient survived the operation for six days. During that period, vascular insufficiency of the leg was not again evidenced.

Any attempt at surgical intervention must be made without delay. The three conditions most commonly diagnosed instead of dissecting aneruysm are: acute cardiac disease (particularly myocardial infarction); cerebrovascular accident; and an acute abdominal condition. Great severity of pain, inequalities of the pulse and blood pressure on the two sides, a widely fluctuating blood pressure on repeated checks at short intervals, the development of a new or changing aortic diastolic murmur, no or non-specific changes in serial ECG in the face of profound distress, hematuria, and a possibly widened or widening supracardiac shadow on chest x-ray are all clues suggesting the true diagnosis, if the index of suspicion is high.

The use of angiocardiography confirmed the diagnosis in four out of the five cases in which it was used.

Wisconsin M. J., 55:709-721,1956.

Rabies

Human rabies is a uniformly fatal yet preventable disease. The rigid control of animal rabies has virtually done away with this disease in England and Scandinavia. The rabid animal may exhibit either of two distinct clinical forms. In the furious type, the animal is irritable, vicious, runs and bites. In the paralytic type, there is no phase of excitement, but rapidly progressive paralysis.

Probably the most important means of prevention, once a bite has occurred, is local treatment of the wound. Since it is difficult to know the biting animal's state of health, every wound must be treated. Almost complete protection may be achieved by nitric acid cauterization even as long as 24 hours after infliction of the wound. Thorough scrubbing with 20% of soft soap solution is as effective as nitric acid, if used within two hours after the bite. As with any penetrating wound, tetanus prophylaxis is always indicated.

Hyperimmune serum appears to produce passive immunity, but vaccination is a necessary adjunctive treatment, and it is the only method of conferring active immunity.

Rosenthal, M. W., et al., *Texas State J. Med.*, 52:599-604, 1956.

Hypothermia in Perspective

Future progress in cardiac surgery demands that some method be evolved whereby the surgeon can operate on the heart under direct vision instead of by the sense of touch

H. C. CHURCHILL-DAVIDSON, M.D., *London, England*

Hypothermia is, strictly speaking, any temperature below 98.4°F., but the term is usually restricted to 93.2°F. or less.

Future progress in cardiac surgery demands that the surgeon be enabled to operate upon the heart under direct vision. The goal, therefore, is to stop blood flowing through the heart, so that one of the chambers can be opened, any defect visualized and repaired, and then the heart closed without the concomitant ischemia causing irreversible damage in any of the other vital organs. There are two possible lines of approach to the problem:

1. The heart and lungs can be isolated from the circulation, and their work temporarily taken over by a mechanical-pump-oxygenator.

2. The oxygen requirements of each cell may be cut down by lowering the general body temperature. The latter is the principle of hypothermia, and its possible application to cardiac surgery was first explored by Bigelow of Toronto in 1950.

Each species of animal appears to have a critical temperature around which the heart stops. Generally speaking, the smaller the animal, the lower is this temperature. Similarly, the younger the animal, the better it is able to withstand low temperatures as compared with its parents.

The main danger of hypothermia is

spontaneous ventricular fibrillation. Thus, as the temperature falls, so the myocardium becomes more irritable until finally a stage is reached when the normal rhythm may suddenly give way to fibrillation. If this does not occur, the heart beat gets slower and slower until it finally stops altogether.

Certain factors such as the anoxia, a high CO_2 tension, and changes in the electrolyte balance tend to make the myocardium more irritable, and therefore require special attention. In man, difficulties that have been experienced in restoring normal rhythm, after ventricular fibrillation has developed during deep hypothermia, have tended to make people wary of using these low temperatures. Temperatures of 30 to 28°C. are now regarded by most anesthetists as the optimum level in adults. This permits interruption of the circulation for 8 to 15 minutes in adults. If much lower temperatures could be reached with safety, the operating time would be much longer. In very young children, a temperature of 26° to 24°C. can usually be reached with safety.

VENTRICULAR FIBRILLATION

Hypothermia has now been used extensively both in England and in the United States for repair of the atrial septal defects and for operations on the great vessels. Similarly, it has found a place in the treatment of certain vascular brain tumours, but the incidence of spontaneous ventricular fibrillation has not warranted its use for general surgical procedures. This may seem to place undue emphasis on the danger of ventricular fibrillation now that we have the aid of electrical defibrillation. The future will decide this point. It would seem more correct physiologically to follow D. G. Melrose's suggestion and deliberately stop the heart, so that its metabolism is minimal, rather than to allow the heart to fibrillate.

SURFACE COOLING AND BLOOD COOLING

There are two possible methods of inducing hypothermia in an adult patient—surface cooling and blood cooling. Surface cooling, the most widely adopted method, consists of cooling the patient's skin either by immersion in cold water or by surrounding the body with ice bags or a refrigerated blanket. The other method, introduced by Delorme of Edinburgh in 1952, cools the blood directly. Originally, blood was taken from an artery and cooled as it flowed through tubing back into a vein. This method was modified by Ross in 1954, whereby blood is taken from a venous channel, pumped through a cooling chamber, and then returned to the inferior vena cava.

Surface cooling is slower but easier to perform, particularly in small children. Blood cooling is quick and has the advantage that it need not be started until the outside of the heart has been examined at operation. Against this, there is the argument that special skill is required to cannulate major vessels, which entails risk. In essence, it does not seem that the method of cooling used is of great importance. Our attention should be directed toward the more vital matters of physiology.

Proc. Roy. Soc. Med., 49:355-356, 1956.

The Physician and the Mentally Retarded Child

Retarded children may have abilities and aptitudes that require special kinds of intelligence; I.Q. changes can be produced by transfer to stimulating environment

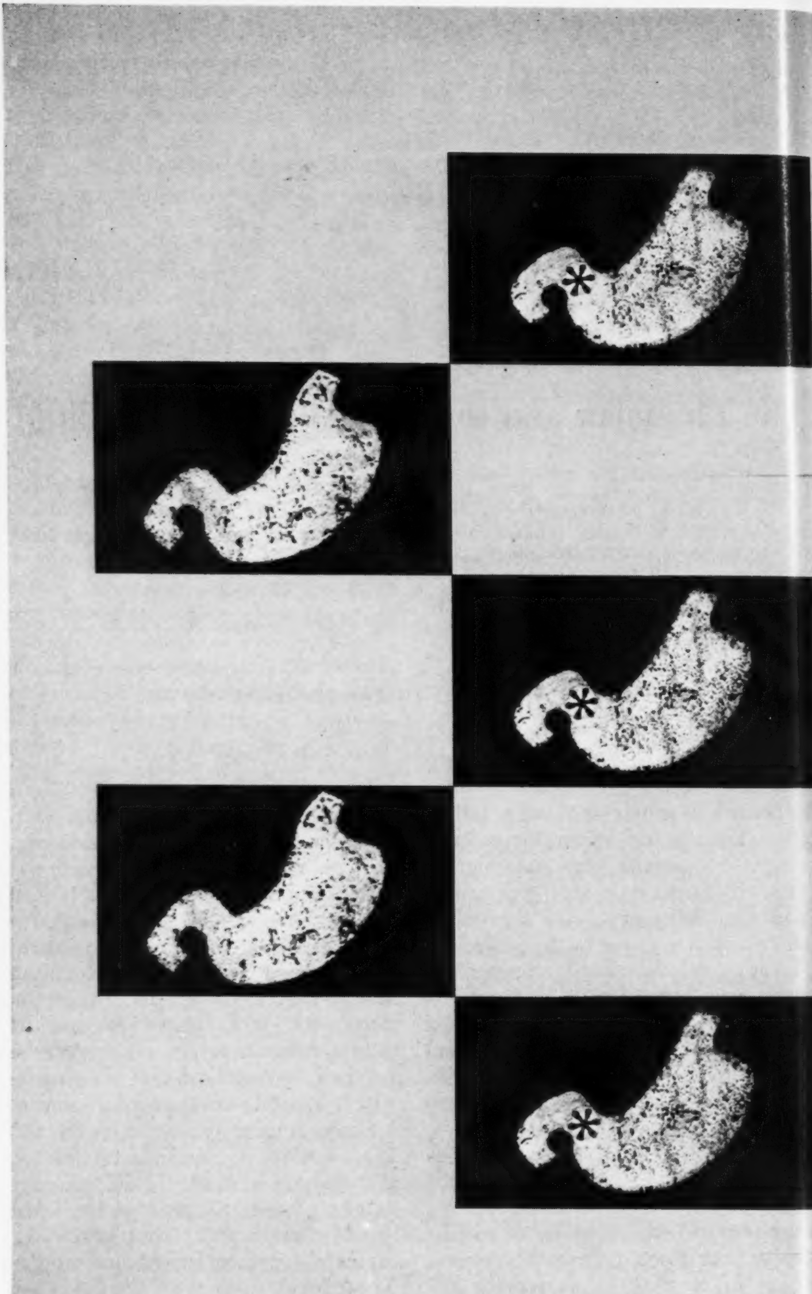
J. V. WALLINGA, M.D., *Minneapolis, Minnesota*

There is much that the family physician can do when his help is sought by parents who suspect that their child may be mentally retarded.

Mental deficiency is not a problem for which we hope to find effective therapy or substantial preventive measures, but persistent focus on mental inadequacy ignores the social capacity and potential of the retarded child. Overdependency on intelligence tests often blinds us to more hopeful aspects of their behavior.

The I.Q. does not measure mechanical, mathematical, musical, artistic, social or other abilities and aptitudes that require special kinds of intelligence; nor does it reveal common sense which may be extremely important in ultimate adjustment. Other capacities of the child which cannot be measured by psychometric tests, but which may be important in the final personality adjustment, include emotion, temperament, motility, shrewdness, insight, originality and resourcefulness. In much the same manner as tested "genius" is only a potential which may never be reached, so is retardation a potential which the individual may far exceed.

Some inconsistency exists in the I.Q. results. It has been suggested that the lower limit of mild retardation be placed at 6-year performance in comparison with adult standards, that of moderate retardation at the 2-year level.



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SEARLE

Transfer from a stagnant to a stimulating environment may improve I.Q. results by stirring latent potentialities.

A recent study suggested that normal fluctuation of the tested I.Q. is *much* wider than previously thought. Of a group of 140 average children followed from infancy to the age of 15, after repeated social and psychologic re-evaluations, the 35 children with the greatest I.Q. gain showed increases ranging from 18 to 57 points, and the 35 showing the greatest loss decreased from 10 to 27 points. It is also observed in this study that the developmental pattern and progress of the young child is not necessarily correlated with the final intelligence level and, together with early I.Q. evaluations, may be quite misleading. Very unfortunate are the consequences in many instances when a young child is removed from its home to an institutional environment.

Parents are reluctant to accept the fact of their child's retardation, even though they have usually been aware of it previously. Bringing into the open the child's retarded status elicits a strong emotional reaction from the parents. If they are not prepared to face what they often construe as their failure, they may reject the diagnosis and leave the doctor to seek help and consolation from some source less qualified but more reassuring. Learning that their child is retarded may precipitate feelings of hostility toward the child, or toward the other parent for his or her part in creating such a child. Parents often develop intense guilt feelings which lead them seek endlessly for a "cure," or to spend money far beyond their resources to help the child toward impossible goals in an effort to assuage their guilt. They may refuse institutional placement for the child no matter how totally incapacitated he may be.

Minnesota, Med., 39:509-512, 1956.

Calculation of Diets

A person of sedentary habits requires a daily diet of 35 calories per Kg. of body weight. If he does heavy labor, there should be 40 or 50 calories per Kg. If a person eats more than 35 calories per Kg. of his ideal weight per day, he will gain at the rate of one gm. of fat plus one gm. of water for each 9 calories in excess. If he eats less than the ideal amount, he will lose correspondingly.

These assumptions may be used for calculating weight-changing diets; e.g., an office worker, 5½ ft. tall, wishes to lose 11 lb. in a month. The required diet is found from the following computations:

(1.) 11 lb. = 5 Kg. = 5,000 gm.;

(2.) 5,000 Gm. ÷ 30 days = 166 gm. per day (equivalent to 83 gm. of fat, plus 83 gm. of water per day).

(3.) 83 gm. of fat is the equivalent of 83 x 9, or 747 calories less than the ideal diet per day to lose 11 lb. in one month.

(4.) The ideal weight is 110 lb. for the first 5 ft., plus 30 lb. for the additional 6 in. This is 140 lb. (64 Kg.) At 33 calories per Kg. of body weight, the "ideal" diet is 35 x 64, or 2,240 calories per day.

(5.) Deducting the required amount (2,240 - 747) gives 1,493 (or roughly 1,500) calories per day to produce the desired rate of weight reduction.

Slonim, Jr., R. J., *J.A.M.A.*, 162:1233,1234, 1956.

The Migraine Syndrome

A new formula, containing ingredients specifically indicated for treating each main factor of the migraine syndrome, brought rapid relief from symptoms with lower dosage

P. J. PAGANO, M.D., *New York, New York*

The patient with complaint of headache has probably already used many remedies in vain. Ten percent of the population is afflicted with vascular migraine syndrome, most common in this type of headache. Migraine is a complex of periodic, throbbing, violent headaches, often incapacitating, often preceded by visual or gastrointestinal phenomena, and usually accompanied by nausea, vomiting and marked irritability. The patient knows the symptoms well which precede and accompany the head pain, the dull ache in the back of the neck and scalp during the attack, the result of sustained contractions of muscles of the head and neck.

Migraine patients suffer an average of 10 attacks per year, each lasting 24 to 48 hours.

There is no successful interval treatment. Several discussion sessions may be required to obtain a diagnosis of migraine. The most important factor in the differential diagnosis is a good case history. Following are factors in the differential diagnosis of migraine:

1. Recurrent headaches, usually throbbing and unilateral at onset.

2. Transient visual disorders preceding the attack. Less frequently, paresthesia, speech disorders, vertigo, sweating and other vasomotor disorders.

3. Nausea, vomiting and irirtabil-

ity at the height and termination of the attack.

4. Family history of migraine.

5. Relief by ergotamine derivatives in 85%.

Tension headache differs from migraine. No aura precedes the attack, pain is dull, there is a sensation of pressure, with tension and spasms in the neck or scalp muscles. Attacks follow or come on with periods of emotional stress.

A new product for the treatment of migraine headaches has the formula: 1 mg. of ergotamine tartrate, 100 mg. of caffeine, 0.1 mg. of 1-belladonna alkaloids and 130 mg. of acteophenetidin.* The formula is the first to contain ingredients specifically indicated for treating each of the main features of the migraine syndrome.

The affected cranial vessels must be constricted to normal before they proceed into the edematous phase. Wigraine tablets disintegrate in human gastric juice within 30 seconds. Other tablets require 30 minutes.

Five patients with migraine of long standing were selected from private practice for evaluation of the effectiveness of Wigraine. Each of these patients had had available medications; most of them had all but given up hope of obtaining complete relief. Each patient was instructed to take two Wigraine tablets upon noticing the symptoms of a migraine attack, and to take one tablet every 20-30 minutes until either complete relief was obtained, or a total of six tablets had been taken. If more than two tablets are required to abort an attack, initial dosage in *succeeding* attacks should be increased. Rest in a dark room after taking tablets improves results.

All of the patients in this group obtained excellent results. In most instances, only the initial dosage of two tablets was required. There were no side effects.

There is no preventive therapy for migraine. A new oral preparation, Wigraine, has proved far more effective in relieving migraine attacks than either ergotamine tartrate alone or ergotamine tartrate and caffeine.

*Wigraine® Organon, Inc., Orange, N. J.

Medical Times, 84:802-811, 1956.

Current Trends in the Management of Arthritis

Treatment should be begun at the simplest level — with salicylates, physiotherapy and rest. If this fails to give the desired degree of improvement, cortisone or some of the newer drugs, such as Meticorten by mouth or hydrocortisone by intra-articular injection, may be given. If they fail, Butazolidin may be used, but the doctor must be acutely aware of the dangers of this drug before he prescribes it.

Gold injections may be given if all else fails. Many would give gold as the first drug after the salicylates, but the repeated visits of the patient to the doctor's office for injections and complex laboratory tests make the therapy difficult.

The arthritis patient of today rarely becomes a cripple, and he is usually able to carry out some form of gainful occupation.

Glomset, D. A., *J. Iowa M. Soc.*, 46:285-289, 1956.

Business Decisions That Affect Your Tax Return

This article is based on information supplied by the American Institute of Accountants, and checked for accuracy by the Internal Revenue Service

Without year-around tax thinking, you may lose sizeable sums; e.g., last summer you may have had to replace your air conditioner. You found you could either sell your old unit to a private party for $500, or a dealer in town would allow $500 on it. Let's assume that the conditioner originally cost $2500 and that you had taken $1000 in depreciation, cost then for tax purposes is $1500, and you were going to "lose" $1000 whichever choice you accepted.

If you made the trade-in, you can not claim a deduction on a tax return for the $1000 loss. All you can do is add the amount of the loss to the cost of your new unit, and eventually receive a small tax credit for your loss in the form of slightly higher depreciation deductions. If you had sold to the private party and bought a new unit from a dealer, you would have established a $1000 loss which could be claimed as a loss deduction on a tax return and used to offset regular income.

A general rule when deciding whether it would be more advantageous to sell or trade-in an asset is: sell "loss" property to obtain a deduction, and trade "profit" property to avoid the tax which must be paid on any profit realized from the sale of an asset.

A certified public accountant can verify the accuracy of your mathematical computations and explain the advantages and disadvantages of the various methods used to compute depreciation.

If your current earnings are low,

or if you are putting in a new line of merchandise and the results of this expansion will take a few years to show in your earnings, it might be more advantageous taxwise for you to use the straight-line method of computing depreciation.

SAVE FOR EMERGENCIES

The straight-line method does not "speed up" depreciation deductions. It spreads them out equally over the estimated useful life of the asset; so when you use a straight-line method you are saving, in a sense, for a rainy day. When your earnings improve or increase, you will have more substantial depreciation deductions to apply against those earnings. There usually is no point in increasing a loss or reducing low earnings by claiming additional depreciation deductions when you do not need them.

There are certain tax advantages to be gained by incorporating a new or expanding company. Since proprietorship and partnership income is taxed at individual rates, which range anywhere from 20 to 91%, and corporation earnings are taxed at corporate rates of 30% on the first $25,000 earned during the year and 52% on the excess, it might appear that if you have low income the proprietorship-partnership rates are lower. However, the corporate tax carries with it the privilege of deducting a reasonable salary paid to an employee-owner. The employee-owner has to pay a personal tax on his salary, of course, but if he were not incorporated, he would have to pay a personal tax on all the money earned by the business.

If the retained earnings of the company are taxed at a corporate rate which is lower than the personal tax rate would be, the employee-owner would benefit by having additional funds available in the corporation for expansion purposes. These funds may be accumulated in a corporation up to $60,000 without further tax penalties, and even higher if the corporation can prove a need for them.

These advantages—while they may cut your current tax bill and increase working capital for expansion needs—can be lost if you have jumped into a corporation without first reviewing your own long-range cash requirements. If you are continually forced to withdraw money from the corporate earnings to pay personal expenses, you will have to withdraw these funds in the form of dividends. That means the corporation will have to pay tax on the earnings you are withdrawing as dividends, and you will have to pay tax on the dividends received. The "double tax" on earnings and dividends can nullify any tax advantage from incorporation when earnings must be withdrawn immediately as dividends.

EMPLOY PROFESSIONAL ADVICE EARLY

Many businessmen seek professional advice about tax matters as they do professional assistance with their golf game—when the slice has become almost unbearable. You can save tax dollars by realizing that business decisions made in the fall affect the amount of tax you must pay in the spring. Practice year-around tax thinking, and consult a qualified accountant when you are in doubt as to the tax effect of even the most routine business decision.

The Doctor Builds His Estate

Prepared for the readers of Clinical Medicine by the Research Department of the leading investment banking and brokerage firm of Bache & Co., 36 Wall Street, New York 5, New York

These monthly articles point out one method by which the professional man may overcome the particular handicap imposed upon him by our tax structure, which taxes the bulk of his income at normal income tax rates, as opposed to the capital gains tax avenue open to many business men. One solution to this problem is the systematic investment of a portion of current income each year in securities. Such a program, which should include many different types of investments such as bonds, preferred stock, common shares and shares of mutual funds, will have as its objectives growth of principal together with reasonable income. We again emphasize that even the most complete series of articles of this type cannot take the place of consultation with a representative of a reputable brokerage firm.

One of the most striking features of the economy during 1956 was the tremendous increase in spending by American business, large and small, to improve and expand its operations. Outlays on new plants and equipment were the greatest in history, and played no small role in keeping the economy moving higher throughout 1956. It is likely that spending to cut costs and/or add new capacity will continue at these unprecedented levels during 1957.

During 1956, American business laid out a whopping $34.9 billion for new plant and equipment, compared to $28.7 billion during 1955, which was itself a record up to that time. What's more, plant and equipment spending was rising all through 1956, and is still moving higher. For exam-

Predictable hypotensive effect—orally

INVERSINE

MECAMYLAMINE HYDROCHLORIDE

INVERSINE—a secondary amine, different from all other ganglionic blocking agents—has many clinical advantages: 1. Gives reproducible effects. 2. Is most potent of all oral ganglionic blockers. 3. Provides smooth and predictable response. 4. Is completely absorbed. 5. Onset of action is gradual. 6. Small oral dose gives desired hypotensive effect. 7. Is effective even in patients refractory to other ganglionic blockers.

Dosage: Initial dose, 2.5 mg. twice daily, increased by 2.5 mg. at 2-day intervals. Average daily dose 25-30 mg.

Supplied: 2.5 mg. scored tablets and 10 mg. quarter-sected tablets in bottles of 100.

INVERSINE IS A TRADEMARK OF MERCK & CO., INC.

MSD

MERCK SHARP & DOHME

DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

General Portland Cement Co.			
Price	61⅜	Capitalization	
12 Mos. Dividend	2.30	Long-term Debt	None
Yield	3.7%	Common Shares	2,079,942
1956-57 Price Range	75¾-50¼		
Traded	N. Y. S. E.		

ple, such outlays during the first quarter of last year were at an annual rate of only $32.8 billion compared to $31.4 billion in the last three months of 1955. The pace rose to $34.5 billion annually in the second quarter, $35.8 billion in the third quarter and to $37.3 billion in the last three months of 1956. Of even more significance, perhaps, is the fact that projected spending for the first three months of this year was recently estimated by government sources at an annual rate of $37.9 billion.

Furthermore, this higher spending is likely to continue through all of 1957, if recent surveys of businessmen's spending intentions are accurate. The McGraw-Hill Department of Economics, for example, has queried thousands of businessmen, and reports that plant and equipment spending appears to be heading for a leveling-off period on a very high plateau. They forecast "brick-and-mortar" spending of some 11% more in 1957 than in 1956, on top of a 21% increase in 1956 (although a good deal of the increase last year was due to higher prices for materials.)

Even more significantly, the survey disclosed that about two-thirds of the companies interviewed expected to maintain or increase spending in 1958, compared to about 30% who expect to decline. This spurt of spending to cut costs in existing facilities and add new ones is obviously not uniform. Some industries, whose sales performance has not been spectacular of late, are in no hurry to lay out vast sums to build new plants in 1957. The auto industry falls into this category, as do firms making residential building materials and textiles. Other industries, however, plan to step up their spending. The petroleum industry is spending substantially more money in 1957 on new equipment for improved refinery processes, as well as for expansion of capacity. Utilities' spending will be up almost 30% to keep pace with America's rapidly growing demands for electric energy.

There are a number of industries that should benefit from these expenditures, industries which sell goods or services needed for new plant and/or equipment. Obviously, cement producers will sell substantial tonnages of their product to companies erecting new buildings, as well as for the Highway Program. Producers of all types of machinery should rack up heavy sales to companies equipping their new plants. Companies which construct new plants for the oil and chemical industries will also do well. We have selected three stocks from these groups—General Portland Cement, Harnischfeger Corporation and Pullman Company.

GENERAL PORTLAND CEMENT

General Portland Cement is recommended for long-term appreciation because of its substantial expan-

sion program, its geographic distribution of plants in growth areas such as Texas and the Southeast, and its demonstrated operating efficiency and excellent management. At present, cement mills are going at about 90% of capacity, which is a rate somewhat higher than the industry's usual level. When the present expansion program got under way in late 1954, it was generally expected that there would be slight overcapacity in 1957, just before the initial impact of the Highway Program expected for 1958. However, despite an increase in capacity from 311 million barrels at the end of 1955 to about 365 million barrels at present, it now seems that the industry will operate near capacity into the foreseeable future. A report by the House Small Business Committee predicts that capacity may be insufficient in view of the normal growth in demand for cement, plus the added requirements of the Highway Program, even though an additional 20 million barrels of annual capacity are being added. In 1956, highways took 74 million barrels of cement, or 23% of total use. In 1958, new requirements resulting from the Highway Program are estimated at 21 million barrels, and this is expected to reach a maximum of 40 million barrels by 1965.

General Portland has increased its capacity even faster than the industry as a whole. Total company capacity was 12.1 million barrels in January 1955, representing plants at Houston, Fort Worth, Dallas, Tampa and Chattanooga. Since then, 500,000 barrels of capacity have been added at Chattanooga, as well as increases of 1,250,000 barrels each at Houston, Dallas and Fort Worth, bringing present capacity to 16.4 million barrels. The company expects to put in a 1,250,000 barrel unit at Miami in October and to double this by March, 1958. At that time, at the close of its current expansion program, total company capacity will reach 18.9 million barrels.

Operating in the South has aided the company in keeping costs down. Year-round operations are possible since construction in the South is less cyclical than in the North; less silo storage facilities are needed due to more constant demand; labor is less expensive; and low-cost natural gas fuel is available to heat the kilns used in the manufacture of cement. As an example of this operating efficiency, the company's profit margin (operating profit before depreciation divided by sales) has averaged 45% for the past five years compared to about 35% for many other firms in the industry, or, seen from another angle, in 1955 the company brought down to income available to common shareholders 61¢ for each owned and operated barrel of cement capacity. Recent price increases should aid this picture further.

Increasing demand for cement in recent years has contributed to the company's rising income. Thus, earnings from 1952 to 1955 were $2.36 a share, $2.52, $3.29 and $3.94. For the first nine months of 1956, earnings were $3.53 per common share, compared to $2.84 in the similar 1955 period. For the full year 1956, we expect earnings of approximately $4.70 per share to be reported.

Assuming the successful completion of the expansion program, and price increases sufficient to maintain and slightly broaden present margins, we anticipate earnings of $5.20

HARNISCHFEGER CORPORATION			
Price	37	Capitalization	
12 Mos. Dividend	1.60	Long-term Debt	$9,000,000
Yield	4.3%	Common Shares	783,544
1956-57 Price Range	41½-34		
Traded	A. S. E.		

per common share in 1957, $5.90 in 1958 and $6 in 1959.

On the basis of the present 45¢ quarterly common share dividend rate plus the 50¢ yearly extra paid last December, the current indicated dividend is $2.30 annually, making for a yield or around 3.7% at present prices. In view of the capital needs of the present expansion program—capital expenditures during 1956 were budgeted at approximately $12,800,000—we do not expect an appreciable increase in the dividend rate for the near future. This present yield is moderate, and the shares therefore are not to be purchased for current income. However, as a commitment for long-term appreciation plus future higher dividend payments, we consider these shares above average in attraction.

HARNISCHFEGER CORPORATION

Harnischfeger Corp. is one of the oldest producers of industrial equipment in the United States. Construction machinery, used largly for road-building but with applications in other fields, particularly mining, accounts for more than half of the company's sales. Industrial machinery ranks second. This equipment includes overhead cranes, of which Harnischfeger is the nation's leading producer. The company also is a large manufacturer of welding equipment and diesel engines, and has given considerable emphasis to the development of a lightweight all-aluminum engine which offers the greatest horsepower output per pound of any diesel engine. Harnischfeger Homes, Inc., a wholly-owned subsidiary, is the nation's third largest manufacturer of pre-fabricated homes.

In the years since World War II, Harnischfeger has greatly expanded and modernized its plant. Since the end of the 1945 fiscal year, gross plant has risen nearly $15 million while net plant has risen about $9 million. During 1956, some $1,500,000 was spent to further expand and modernize operations. This year, the company anticipates expansion of its welding facilities and the purchase of additional machine tools which will further increase productive capacity.

In the 1956 fiscal year, all of the company's product lines moved ahead with incoming orders at record levels. Sales for the 12 months ended October 31, 1956, rose 22.5% to $81 million. Net earnings in the same period totaled $4.16 per share, compared with $2.02 a year earlier, an increase of more than 100%. What's more, the company closed the fiscal year with a substantial increase in unshipped orders as compared with a year earlier. Indicative of the continued improvement in the company's position was the outstanding performance of its consolidated subsidiary, Harnischfeger Homes, which showed better earnings despite a very sharp nationwide dip in residen-


AUREO

PULLMAN INC.			
Price	64¼	Capitalization	
12 Mos. Dividend	4	Long-term Debt	None
Yield	6.2%	Common Shares	2,212,500
1956-57 Price Range	74¼-62½		
Traded	N. Y. S. E.		

tial construction. This improvement was due to the increased selling effort and cost reduction program of the subsidiary.

The outlook for Harnischfeger in the years ahead is favorable. Its most important business, the manufacture of road-building equipment, is expected to show substantial sales improvement over the next decade. The need for additional roads is highlighted by the recent Federal legislation which calls for expenditures of more than $100 billion on road-building over the next thirteen years. Harnischfeger, as one of the leading manufacturers of this equipment, should witness materially greater sales as this program gains momentum.

The trend toward pre-fabricated homes is strong, and Harnischfeger Homes should benefit by the favorable outlook, as well as from increasing its share of the market. The company recently added two new three-bedroom models to its line of homes, bringing to 176 the number of models now available to builders. The houses, of sizes ranging from a total floor area of 832 to 1,040 square feet, feature attached panelized garages in the new designs.

The financial condition of Harnischfeger is satisfactory. Current assets at the end of 1956 approached $42 million, as compared with not quite $13 million of current liabilities and $9 million of long-term debt. It would appear that in view of the increased volume of the company, some provision for additional funds will have to be made either through sale of stock or additional long-term debt.

The shares of the company, a Milwaukee firm, were listed on the American Stock Exchange on August 6, 1956. Previously, trading took place only on the Midwest Stock Exchange.

PULLMAN INC.

Pullman Inc. is a holding company and owns 100% of the stock of three major operating subsidiaries:

1. Pullman Standard Car Manufacturing, the largest builder of railroad freight and passenger cars.
2. The M. W. Kellogg Company, which specializes in the engineering, design and construction of refineries and other facilities for the petroleum industry, and processing plants of the chemical industry.
3. Trailmobile Inc., the second largest builder of highway truck-trailers.

Pullman Standard Car Manufacturing, with a highly efficient plant and the leadership in the design of many new types of railroad equipment, is actively participating in the demand for rolling stock by the railroad industry. Despite high production in 1956, the industry's backlog —117,000 cars at year-end—was not much below the 1955 figures, since

the heavy placement of orders in the latter half of 1955 carried through into 1956. At the present time the railroad industry is considering the construction of approximately 500,000 cars over the next five years to rebuild the car fleet and meet shortages for certain types of cars. Also, the demand for lightweight passenger trains is expected to increase in the near future as railroads take advantage of their lower cost and more economical operations.

The problem in passenger operations for the railroads is a serious one and many solutions are being sought, one being the use of these lightweight trains. Assuming industry's acceptance of these trains, a buying boom may well result in the passenger car operations of Pullman. However, until that time no major change is anticipated in the backlog.

Another area for increased sales volume is the use of "piggy-back" cars. The company has already built several hundred specially designed cars for such service; and the company has both experience and facilities to build whatever type of "piggy-back" equipment is desired, whether side-loading, end-loading or container type cars.

Earnings in 1956 for this division were adversely affected by the steel strike in the third quarter which resulted in prolonged shutdowns at all Pullman Standard freight car plants. Operations were resumed in late September and reached a high level of production by mid-October. The outlook for this year is favorable with the current backlog assuring a high level of production for the full year. The only limiting factor at the present time is the availability of steel plates.

The M. W. Kellogg Division, which was purchased in 1944, has become a major contributor to the parent company's earning picture. The principal field of activity is petroleum refinery and chemical plant engineering and construction. The company had a good year in 1956, marred only by a strike in the Jersey plant in the first quarter. However, new orders received during the year exceeded sales, and the company's backlog is being well maintained. Possibly the most important factor in the 1957 outlook is the proposed 50% increase in expenditures by the oil industry for process units designed to upgrade gasoline octanes and to make higher quality fuel oils and lubricants. These expenditures of more than $1 billion should help Kellogg's earnings picture considerably since the company is one of the leading builders of catalytic cracking units and other facilities for the petroleum industry.

On January 2, 1957 the company announced the development of a new process designed to convert low octane gasoline into a high octane product. Kellogg said the process, called Iso-Kell would enable petroleum refiners to make a larger quantity of high octane gasoline from each barrel of crude oil processed. Several large contracts have been awarded to the company and immediate prospects in this field of activity are bright indeed.

Trailmobile Inc., the most recent acquisition by Pullman in its program of diversification, produces a full line of highway truck trailers. New records in 1955 were set in all phases of Trailmobile's business—in profits, dollar volume, unit volume, percentage of the total market and new customers. Also, Trailmobile's sales

volume in the first half of 1956 set a new record for the company.

Growth prospects for this subsidiary are good, especially in the increased demand for trailers for use in "piggy-back" operations by railroads. In the light of Pullman's established trade relations with most railroad companies, the Trailmobile subsidiary should benefit to a great extent from any new orders which are placed. With the Government committed to a major highway construction program over the next 13 years, the long range outlook for Trailmobile sales seems bright. The company in the future should contribute a much larger percentage to total consolidated earnings than before.

Earnings for Pullman Inc. for the nine month period ended September 30, 1956 equaled $4.23 a share as compared with $2.88 in the similar period of the previous year. Earnings in the third quarter, as mentioned above, were adversely affected by the steel strike and were considerably lower than the first two quarters. However, with operations once again in full swing, per share income in 1956 amounted to approximately $5.75, up considerably from $4.34 reproted in 1955. While it is still too early to make exact estimates for 1957 operations, it is our opinion that earnings will be significantly above those reported in 1956.

The financial positioin of the company is strong. As of September 30, 1956, current assets aggregated $162 million with cash and equivalent amounting to $18 million and current liabilities of $36 million. Net working capital of $126 million amounted to $56.78 per share.

In our opinion, Pullman common shares appear attractive for capital gain possibilities on higher earnings potential from the three operating subsidiaries which have favorable prospects for this coming year.

NEW PHARMACEUTICAL PRODUCTS

Achrocidin Syrup *(Lederle)*

For the relief of symptoms associated with upper respiratory infections and for the control of secondary infections. It combines Achromycin with vitamin C, an antihistamine, and two analgesic compounds. *Indications:* Headache, muscular aches and pains, fever, nasal discharge, excessive mucus and chest congestion. It controls most bacterial infections that complicate the common cold in susceptible individuals. *Dosage:* Adults, 2 teaspoonfuls 3 or 4 times daily for 3 to 5 days. For children, the dosage should be varied according to weight. *Supplied:* Four ounce bottles. Achrocidin is also available in bottles of 24 tablets.

Vi-Dom-C Oral-Tabs *(Dome)*

Contains 1335 mg. of ascorbic acid from sodium ascorbate in a buccal tablet for oral administration. *Indications:* Subclinical adult scurvy, miliaria, purpura, slow healing of wounds, gingivitis, synergy with Vitamin A in the treatment of acne. *Administration:* One tablet daily placed in the mouth and allowed to dissolve slowly for absorption through the buccal mucosa. If symptoms are severe, increase to 2 tablets daily. *Supplied:* Bottles of 25, 60 and 100 tablets.

Neo-Cort-Dome Creme *(Dome)*

Neomycin 5 mg. per gm. with micronized hydrocortisone alcohol in a specially modified Acid Mantle vehicle. Neomycin is stabilized in a water-washable base with hydrocortisone. *Indications:* The same as for Cort-Dome whenever secondary infection is superimposed on the diseases indicated and antibiotic activity is required. *Administration:* Clean affected area, then apply creme sparingly. *Supplied:* In ½% and 1% hydrocortisone strength. Each strength is available in 5 gm., ½ oz., 1 oz., 2 2 oz., and 4 oz. tubes. Neo-Cort-Dome is also available in a semi-liquid lotion form in the same strength in plastic bottles.

Medihaler-Phen *(Riker)*

Each cc. contains 3.6 mg. of phenylephrine hydrochloride, 0.6 mg. of hydrocortisone, and 1.5 mg. of neomycin sulfate in an inert propellent. *Indications:* Decongestant, antibacterial and anti-inflammatory therapy in rhinitis, sinusitis and nasopharyngitis. *Dosage:* One inhalation in each nostril. Wait at least five minutes, then if relief is inadequate, a second inhalation may be taken. Dose may be repeated every two to three hours for severe congestion. *Supplied:* 10 cc. vial with Nasal Adapter.

Azodettes *(Plessner)*

Antibacterial-analgesic to check both infection and pain in urinary tract infections. Provides high urinary concentrations of two major urinary tract antibacterial sulfonamides, with little likelihood of crystalluria and renal blocking. Each tablet contains 125 mg. of sulfacetamide, 125 mg. of sulfadiazine and 50 mg. of phenylazodiamino-pyridine. *Indications:* Cystitis, prostatitis, urethritis caused by amenable organisms, pyelonephritis, epididymitis, ureteritis, and trigonitis. *Dosage:* 2 tablets four times daily, or as directed by physician, after meals and at bedtime. Continue therapy for several days after infection is cleared up. Push fluids. *Supplied:* Bottles of 100 and 500 tablets.

Antepar *(Burroughs Wellcome)*

Piperazine phosphate in chewing wafer form. Each wafer contains the equivalent of 500 mg. piperazine hexahydrate. *Indications:* Pinworms and roundworms. *Supplied:* Boxes of 28 wafers in plastic strip packing.

Phenaphen Plus *(Robins)*

Combines the analgesic-sedative-antipyretic benefits of the Phenaphen formula with the antihistamine, prophenpyridamine maleate, and the nasal decongestant, phenylephrine hydrochloride. *Indications:* For symptomatic relief of the common cold, influenza, allergic rhinitis, conjunctivitis and hay fever, sinusitis, and upper respiratory infections associated with nasal congestion. *Dosage:* 1 or 2 tablets three times daily, or as directed by the physician. *Supplied:* Bottles of 100 red-orange, coated tablets.

Dexazyme *(Gray)*

A comprehensive approach to prolonged mood elevation. It provides the antidepressant action of three agents, pentylenetrazol, d-amphetamine, and niacin, in addition to vitamins B and C. *Indications:* Neurotic depression, reactive depression, depression-induced hypochondriasis, depression of the aged, postpartum, postoperative convalescent depressions, and depressions of the chronically ill. *Dosage:* 1 or 2 tablets three times daily at meals.

Cholan V *(Maltbie)*

Each tablet contains 250 mg. of dehydrocholic acid and 5 mg. of homatropine methylbromide for effective hydrocholeresis with an added antispasmodic action. *Indications:* Biliary diseases associated with spastic conditions of the gastrointestinal tract. *Dosage:* 1 or 2 tablets three times daily as directed by the physician.

Desitin Soap *(Desitin)*

A mild cosmetic and nursery soap that does not deprive the skin of natural fats. Contains antiseptic hexachlorophene. Provides abundant, mild lather, ideal for cleansing infant's skin. *Indications:* Useful in various dermatitis, dermatoses and various skin conditions which require cleansing with virtually no sensitization or irritation—as in acne, diaper rash, eczemas, atopic dermatitis, "housewives" eczema, seborrhea, athlete's foot, etc. Hexachlorophene helps combat secondary infections. *Supplied:* 3 oz. cake.

briefs: MEDICAL

Dysphagia as a Symptom of Coronary Artery Disease

Two cases of angina pectoris are reported in which dysphagia was a substitution phenomenon for pain. In one case, the patient never experienced retrosternal or referred pain but had repeated attacks of dysphagia and died suddenly from an acute coronary occlusion. In the other case, the patient experienced both anginal pain and dysphagia at different times, the dysphagia being manifested as an angina equivalent.

Schlachman, M., *New York State J. Med.*, 56:79-81, 1956.

Salt Loss in Chronic Renal Disease

Two cases of "salt-losing syndrome" are described. One of these cases was complicated by the appearance of a flaccid paralysis due to hyperkalemia. This responded dramatically to intravenous saline therapy. The second case occurred in a woman, 70 years of age, and was accompanied by marked nitrogen retention. Despite this, the response to saline therapy was most gratifying.

The importance of investigation of cases of "uremia" is stressed. Blood and urine analysis may reveal sodium depletion associated with excessive renal loss. The treatment of this aspect of the underlying renal condition is occasionally a lifesaving measure. The ultimate prognosis depends on the severity of the primary lesion, which usually is a chronic pyelonephritis.

Read, A. E., *Brit. M. J.*, 4980:1399-1401, 1956.

Depression of Gastric Secretion by a New Anticholinergic Agent

The anticholinergic medication, Piptal, was studied in 88 patients with elevated and normal gastric secretion. In 77 (88%) there was a decrease in the output of free acid. In 35 (40%) anacidity for 30 minutes or longer was produced.

In no case was complaint made of any side effect. Piptal is apparently unique in that it represents a potent antisecretory agent without side reactions.

Responses to the same dosage of the drug are varied. Larger dosages do not regularly increase the number of patients on whom the drug will have an inhibitory effect. Prolonged use did not consistently or permanently depress basal secretion.

Presently available anticholinergic drugs serve as an adjunct in the treatment of peptic ulcer, not as a substitute for effective antacid management.

Klotz, A. P., *Am. J. Digest. Dis.*, 1:108-115,1956.

Chronic Granulocytic Leukemia

When Myleran was first obtained, the initial dosage scheduled was 25 mg. daily for six days. Two cases which were treated with this dosage showed rapid falls in the leukocyte counts, but no deleterious effects were noted. In most cases, the initial daily dose was 4 or 6 mg. continued until the hemoglobin rose to normal or near normal. No attempt was made to reduce the leukocytes to normal, though this was sometimes achieved before the hemoglobin reached normal. Therapy was temporarily discontinued when the leukocyte count fell below 10,000. Daily maintenance dose has been 1 to 4 mg. It is suggested that, if maintenance treatment is elected, the dosage should be not more than 1 or 2 mg. a day until it is evident that more is needed.

Myleran appears to be the best available therapy, superior to urethane or Fowler's solution, for chronic granulocytic leukemia.

It was administered orally to 19 patients with chronic granulocytic leukemia. Nine of the 19 patients had received no previous therapy. The onset is considered as the time when the patient first noted symptoms that could reasonably be attributed to this form of leukemia. Good remissions lasted for one to 30 months in 14 patients. Some of the remissions continue. Best results were in patients with recently diagnosed typical chronic granulocytic leukemia. Three separate remissions were induced by intermittent therapy in one patient. Remissions were characterized by a rise in hemoglobin, decrease in size of the spleen, fall in leukocytes and a prominent subjective improvement. Myleran should be the treatment of choice in some patients with recently diagnosed disease, and in patients whose disease is no longer controlled by radiation therapy.

Shilling, R. F., et al., *New England J. Med.*, 254: 986-989, 1956.

Treatment of Bromide Intoxication with Mercurial Diuretics

Results of investigation suggest that a combination of ammonium chloride and a mercurial diuretic is the most effective method available for accelerating the elimination of bromides from the body. The treatment recommended is the administration of ammonium chloride, 6 gm. per day in divided doses, together with the intramuscular injection of 2 cc. of Mercuhydrin every second or third day.

Hussar, A. E., et al., *Am. J. Med.*, 20:100, 1956.

Electrocardiogram in Situs Inversus

Dextrocardia with reversal of the abdominal organs is a rare condition. LeWald found a case rate of one in 35,000 in army recruits, and one in 5,000 at necropsy.

In the ECG in situs inversus, lead I is the inverted image of normal; lead II resembles a normal lead III; lead III resembles a normal lead II. Leads aVR, aVL and aVF show analogous changes. The chest leads bear little resemblance to their normal counterparts. These changes in their typical form do not occur without reversal of the *abdominal* organs.

A 12-lead ECG taken with electrodes reversed is a normal ECG.

Northup, D. W., et al., *West Virginia M. J.*, 52:169-170, 1956.

The Painful Heel

A recent paper records the results of a study of 19 patients complaining of pain in one or both heels in which the etiology was unknown.

No relationship is demonstrated between the symptoms and presence of a spur. Ten of 13 heels which were injected with 25 mg. of hydrocortisone acetate and 5 of 9 heels which were injected with normal saline were cured two months after the injection, and remained cured. This could well be due to chance.

The pain is commonly unilateral. Calcaneal spurs seem to be an incidental finding and seem to bear no relation to the onset or severity of the symptoms.

Injection of a painful heel, with the provision of a sponge-rubber pad, has given more immediate and late successes than has been achieved by any other method of treatment used in this survey.

Blockney, N. J., *Brit. M. J.*, 4978:1277,1956.

Evaluation of Chlorpromazine Therapy For Psychiatric Disorders

Of 59 violent psychotic patients given chlorpromazine, 21 recovered and were released from the hospital, 34 improved and no longer require the physical restraint and heavy sedation they once needed and 4 failed to respond to treatment.

It was necessary to establish the optimal dosage schedule for each patient. Side effects were mild and in only one patient did medication have to be stopped. The commonest side effects were hypotension and sleepiness. There was marked reduction in need for mechanical restraints and heavy sedation.

Thal, N. et al., *Northwest Med.*, 55:653-656,1956.

Obesity and Disease

Obesity is accompanied by a shortened life expectancy and a high morbidity, particularly from degenerative cardiovascular diseases, diabetes and biliary diseases. To evalulate the relationship of obesity to diseases, better means must be developed to assess obesity in its various aspects.

Obesity aggravates pre-existent and independently developing diseases. The high fat content rather than the high-calorie content of the diet may contribute to the development of degenerative vascular diseases in obesity, as well as in the non-obese population.

Dietary restrictions and exercise are the only treatment of obesity. Patients need emotional support to adhere to a reducing program.

Goldner, M. G., *New York State J. Med.*, 56:2063-2069, 1956.

Endogenous Depression

From a general practitioner's point of view, depression may be grouped with cancer and tuberculosis. All these diseases start in an insidious manner and are easily overlooked. The suitability of general practice for observation of such cases is stressed. Depressions are mild, moderate or severe. Not more than one fourth of the cases are seen by a psychiatrist. Endogenous depression is essentially a disease of general practice.

Of all new psychiatric cases seen in general practice, 36% are depressive. About two thirds of such cases are endogenous depressions. At least five new cases occur each year in every 1,000 patients.

A severe depression in an old person is a serious illness with a bad prognosis. The place of E.C.T. in the treatment of such cases is worthy of a special study. Depression is much more common among women than men, except in senility. Some 14% of all patients with depression end in a chronic state, die in depression or commit suicide.

Watts, C. A. H., *Brit. M. J.*, 4980:1392-1397, 1956.

Sensitivity to Alcohol—a Symptom of Hodgkin's Disease

The symptom of pain after ingestion of alcohol has been reported in four cases of proved Hodgkin's disease. It is recommended that any patient reporting pain on the ingestion of alcohol should be examined for evidence of systemic Hodgkin's disease.

The alcohol-sensitivity test is suggested in detecting recurrent Hodgkin's disease and in evaluating results of treatment.

Godden, J. O., et al., *J.A.M.A.*, 160:1274-1277,1956.

Furadantin in Urinary-Tract Infections

Of 73 patients with chronic urinary-tract infections, some "seemingly impossible" to cure were relieved of their infection by the use of Furadantin. All the infections had proved resistant to other chemotherapeutic agents and to antibiotics.

Furadantin brought results within 8 to 36 hours. Often the urine was culturally and microscopically negative within 24 hours. Infection was controlled in 81% of the cases. Side reactions were less than 10%, severe in less than 1%.

Stewart, B. L., et al., *J.A.M.A.*, 160:1221,1956.

Folic Acid and Vitamin B_{12} in Medical Practice

Folic acid is the initial treatment of choice in sprue, nutritional macrocytic anemia and the megaloblastic anemias of infancy and pregnancy.

Vitamin B_{12} is indicated for use in all patients with pernicious anemia, and it should be the initial therapy whenever doubt exists about the etiology of megaloblastic anemia.

If the possibility of pernicious anemia exists, folic acid should not be given because of the hazard of degeneration of the spinal cord. For this reason, the inclusion of folic acid in multivitamin and "panhematinic" preparations is potentially dangerous.

When either of these vitamins is used, blood examinations at frequent intervals are essential to evaluate the treatment. The dosage of either vitamin must be adjusted to the requirements of the individual patient.

Unglaub, W. G., et al., *J.A.M.A.*, 161:623-627, 1956.

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Prefrontal Lobotomy for Intractable Ulcerative Colitis

Of five patients who underwent bilateral prefrontal lobotomy for intractable ulcerative colitis with varying degrees of psychiatric disease, three show complete remission of their colitis, one is satisfactorily improved, and one died of an intestinal obstruction in the postoperative period. Septicemia was demonstrated as cause of death at autopsy.

Levy, R. W., et al., *J.A.M.A.*, 160:1277-1280, 1956.

Furadantin in Biliary Infections

The first investigation of the excretion of Furadantin in the biliary tract proved the drug to be highly bactericidal in vitro to three organisms that cause gallbladder infections: *Escherichia coli, Salmonella typhosa* and *Streptococcus fecalis*. The studies indicate that bactericidal levels of Furadantin can be achieved in the bile following administration of 100 mg. of the drug orally, four times daily.

Twiss, J. R., et al., *Gastroenterology*, 30:820, 1956.

New Treatment For Seborrhea and Allied Conditions

In a series of 120 cases, Fostex* was observed to be a most satisfactory preparation for controlling seborrheic dermatitis of the scalp and face. It also proved to be efficaceous as an adjunct in the treatment of acne vulgaris. Because of its lack of toxicity, as well as its simplifiied application, this preparation is to be commended as a valuable addition to dermatological therapeutics.

**Westwood Pharmaceuticals*, Buffalo, N. Y.
Robinson, A. M., *J. South Carolina M. A.*, 52:7, 1956.

Impotence: 67 Cases Treated With Glukor

A fortified steroid, Glukor,* has been used for treatment of the male climacteric and male senility. Recent study has indicated its value in the treatment of the impotent patient. Each cc. of Glukor contains: chorionic genadotropin 200 I.U., thiamine chloride 25 mg., L (+) glutamic acid 52.5 ppm., 1% procaine hydrochloride, 0.5% chlorobutanol and it is administered intramuscularly.

Sixty seven men who were impotent were treated with Glukor and observed over a period of from 2 months to 6 years. Cases were of varying degree. Each had undergone treatment with testosterone, either orally or by hypodermic, with poor results. They were divided into two groups:

Group I, 34 patients, received 10 placebo injections with no positive response.

Group II, 33 patients, received 10 Glukor injections with excellent results.

Following this, Group I was placed on Glukor with similar positive response. Further control was evaluated in 37 cases where treatment was carried on over a year. In these, there was recurrence of impotence after varying periods of abstinence (3 weeks to 4 months). Reinstitution of the therapy was beneficial.

Following diagnosis of impotence, each patient was injected with 1 cc. of Glukor twice weekly. Duration of treatment was 2 months to 6 years. Satisfactory results were obtained in 85 percent, usually by the third to tenth injection. Ten cases showed no significant response.

In most patients, Glukor's initial effect lasted for several days, so it was administered twice weekly for two months, when effectiveness was maintained indefinitely by one weekly injection. After ten to twenty injections, some patients could forego injections for months at a time. In stubborn cases, 2 cc. was given three times weekly until there was satisfactory response. After three to ten injections or four weeks of therapy, if some improvement was not seen, the medication was not continued.

This study indicated that Glukor is the drug of choice in treating impotence and that it was effective in 85 percent of 67 cases. There is no contraindication to Glukor and no untoward effects from prolonged use.

*The Glukor used in this study was supplied by Research Supplies, Albany, N. Y.

Gould, W. L., *Medical Times*, 3:302,1956.

Fatigue

Fatigue is a symptom volunteered, or brought out on inquiry, in at least 50% of cases seen by internists.

In the case of the hypochondriac with a basic inferiority complex, use of amphetamine, 5 mg. 4 times daily seems justified.

Discussion has dealt with fatigue as a clinical entity or an associated symptom. Fatigue is a normal phenomenon experienced by everyone and is easily relieved by rest and sleep. These allow the organism the opportunity to re-establish equilibrium and to maintain physical and psychologic integrity. Some may require 10 hours of sleep per night, while others feel refreshed with only 6.

Burkhardt, E. A., *New York State J. Med.*, 56:62-67,1956.

Cervical Traction and Other Physical Therapeutic Procedures for Pain about the Neck and Shoulders

Osteoarthritis of the cervical vertebrae with irritation of the nerve roots, protruded cervical disk or whiplash injury are treated with heat applied locally, sedative massage and traction of the cervical portion of the spinal column by the aid of a Sayre head sling. Heat and sedative massage to neck and shoulder girdles, and special exercises to improve posture and to strengthen the shoulder retractors and elevators are helpful in relieving the symptoms of the outlet or brachial plexus syndrome. Patients can be instructed to carry out these procedures at home under the supervision of the physician.

Erickson, D. J., *Minnesota Med.*, 39:373-377, 1956.

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briefs: SURGICAL

The Etiology of Cholelithiasis

In the years following the climacteric, sex differences in the incidence of cholelithiasis appear to diminish until there are virtually no differences in the oldest age group. Women with gallstones, who were under 50 years of age, were heavier than normal women of a comparable age and height. After 50 years of age, differences in weight were no longer apparent.

Analysis of stones found at necropsy showed the mixed type to be most frequent, the pigment type next, and the cholesterol type the least frequent in both sexes. Comparisons were drawn between the incidence of gallstones and of atherosclerosis.

Prior to the menopause, there is a sex difference in cholesterol metabolism. This difference is expressed in women by a high frequency of cholelithiasis and a low frequency of atherosclerosis, while the reverse occurs in men. After the menopause, when hormonal differences between the two sexes become less clearly defined, the pathways of cholesterol metabolism may converge and so account for the diminishing sex differences in the related incidence of gallstones and atherosclerosis among older persons.

Horn, G., *Brit. M. J.*, 4995:732-737, 1956.

Acute, Subacute and Chronic Subdural Hematoma

A study of 30,000 patients with trauma to the head indicates that an operable subdural hematoma occurs in 1% of all head injuries and in less than 5% of severe cases. The customary classification into acute and chronic groups is unsatisfactory and misleading. Any classification should clearly indicate the existence of a *subacute* group—for 50% of our 300 cases of hematoma were subacute and required surgery to save the life on the seventh to the twenty-first day after the injury.

Echlin, F. A., et al., *J.A.M.A.*, 161:1345-1350, 1956.

Herniorrhaphy in Cirrhosis of the Liver with Ascites

Herniorrhaphy for patients with severe cirrhosis of the liver with ascites must be undertaken with caution. With scrupulous treatment and careful technic, a satisfactory result was finally achieved in 16 operations on 11 patients. Many patients had improved in nutritional status and lost some ascites before operation.

Healing of wounds by primary intention occurred in 15 of the 16 operations, despite undernutrition and chronic liver disease with ascites and hypoalbuminemia.

Yonemoto, et al., *New England J. Med.*, 255:733-738, 1956.

Abscess of the Tongue

A farmer, 36 years of age, had been in good health until a night in November, 1955, when he noted a small, tender lump in his tongue. The following morning he had no complaints, except of his tongue. Findings were limited to a small walnut-sized mass in the middle third of the tongue to the left of the midline, and a small slightly tender lymph node at the angle of the mandible. W.B.C. 11,600, N. 77%. He was given 800,000 units procaine penicillin.

About 6:00 P.M. the same day, the patient returned because of increasing pain in his left ear, and swellling of tongue, generalized aches and chills. There was no recent or past evidence of fungus infection in his livestock.

He was hospitalized with a temperature of 101.2°. Under procaine, mucosa was incised, probed with a small forceps, and the pocket drained several cc. of pus. A small rubber drain was sutured in place, and penicillin was repeated. The temperature was 99.4° by the following morning and the patient was much improved. Healing rapid, uneventful and complete resulted.

Cultures of the pus showed alpha hemolytic strep.

Vix, V. A., *Minnesota Med.*, 39:597-598, 1956.

Gallbladder Bacteria

Nonpathogenic microorganisms are found in most cases of cholecystitis with stones and in many normal-appearing gallbladders without stones. There is no clinical evidence that they help in the breakdown of the bile for normal physiologic action.

Lyle, F. M., *Northwest Med.*, 55:1089-1092, 1956.

Analgesia For Anorectal Surgery

Caudal analgesia requires only a spinal needle, a 20-cc. syringe, and metycaine. It is particularly suited to operations upon anal and perianal infections, extensive fistulas, prolapse and procidentia. Local infiltration analgesia is satisfactory in almost all types of anorectal surgery, including the conditions mentioned.

It is best not to make needle insertions directly into an infected area, so caudal analgesia is preferred in most anorectal abscesses. In case caudal injection does not produce complete analgesia, it becomes necessary also to inject the four sacral foramina or to add local infiltration. In the very obese, caudal analgesia may be difficult or impossible. After operation under caudal analgesia, it is best to keep the patient at rest for at least one hour.

Cantor, A. J., et al., *Am. J. Proctology*, 7:396, 1956.

Sarcoidosis: Its Diagnosis and Management

The diagnosis of sarcoidosis rests on three points:

1. The clinical picture.
2. Histologic demonstration of the presence of noncaseating tubercles.
3. The exclusion of TB, fungous infection and beryllium inhalation.

Cortisone should be given in those cases in which there is serious disability such as: eye lesions, advanced lung disease, hypercalcemia, hypersplenism and cardiac involvement.

Ray, F. S., *West Virginia M. J.*, 52:200-202, 1956.

Post-traumatic Intraocular Hemorrhage

The sequelae of post-traumatic intraocular hemorrhage are: degeneration, atrophy, lowered viability, and lack of biologic resistance to further insult. All of these plead for an open mind in approaching the task of finding an effective treatment. In the author's experience with 72 cases, the best results have been obtained by adhering to conservative methods of treatment. Mydriatics and myotics were not used.

Folken, F. G., *Minnesota Med.*, 39:440-443, 1956.

Revision of Scars

Generally speaking, a scar does not reach maturity from a clinical standpoint until six months after the time of injury. Often a scar that is thick and indurated at three months becomes soft and pliable at six months. No scar should be revised until this maturation is reached.

Coleman, Jr., C. C., *Virginia M. Monthly*, 83:250-252, 1956.

Blood Vessel Grafts

Principal indications for re-establishing continuity of the aorta and major arteries are obliterative disease and aneurysm. Less frequent are trauma, neoplasm and congenital vascular lesions. In obliterative diseases, efforts are directed toward preventing incapacity, pain and possible loss of limb; in aneurysm, toward the saving of life.

In considering surgical treatment, one must weigh the life expectancy against the risk of operation. Mortality of commonly employed procedures is: thrombo-endarterectomy, 5%; graft for obliterative disease, 11%; graft for aneurysm, 20%; for ruptured aneurysm, 40% or more.

Schlicke, C. P., *Northwest Med.*, 55:1069-1073, 1956.

End Results of Cancer Treatment

Treatment of choice in cancer of the uterine body is total hysterectomy, with or without preoperative radiation. The five-year cure rate is 60%. Radiological therapy is preferable in cervical cancer, the five-year rate in unselected cases is 45%, stage 1, 70%, stage 2, 45%, stage 3, 25%, stage 4, 5%. In selected groups, comparable results can be attained by radical surgery. Radical surgery is preferred in vulvar lesions — 40-50% survival. Skin cancer is highly curable, with a survival rate of 90%.

Reports indicate that the cancer which show the greatest increase in survival rates is that of the large intestine, rectum, cervix uteri, corpus uteri, prostate, and endocrine glands. There is little if any improvement in the rates for cancer of the stomach, lung, esophagus, ovary, and soft tissues.

Cancer Bull., 8:99-100, 1956.

Rectal Procidentia

Ten patients were operated on for rectal procidentia from 1952 to 1956. The operation amounts to no more than an anterior resection. There have been no deaths, and no recurrences. There was a prolonged morbidity in one case due to a reaction from sulfathaladine.

Routine preparation for five days was 6 gm. of sulfathaladine daily in divided doses, and clear liquids only on the last two days. A Levin tube was placed in the stomach the night before operation with the suction on for six hours before surgery.

An illustrative case is presented of a single woman, 46 years of age, who was admitted to the hospital in 1939, when she was 30 years of age, with the diagnosis of schizophrenia, paranoid type. Rectal procidentia developed in 1952, infrequently at first. In 1954, the rectum presented itself with every bowel movement, whenever she coughed or sneezed, or increased her intra-abdominal pressure from any cause. During psychotic episodes, manual reduction was required eight or ten times daily.

Melendy, O. A., *J. Maine M. A.*, 47:276-278, 1956.

Resection of the Anginal Pathway

Thirty-three patients with severe disabling angina pectoris were subjected to resection of the anginal pathway. Three patients died during the operative procedure. Of the 30 patients surviving, 18 had complete relief of anginal pain for one to eleven years, eight had only mild exertional discomfort, and four obtained no relief from the procedure for a period of up to four months.

Burnett, Jr., C. F., et al., *J.A.M.A.*, 162:709-712, 1956.

Results of Corneal Transplants

There is no other operation in ophthalmology in which the results of surgery can be so gratifying, or so disappointing, as in corneal transplantation. When the transplanted cornea remains clear and transparent, when there are no vessels and when there have been no complications during or after surgery, patients frequently have 20/20 vision. Possible complications include loss of the lens and vitreous, incarceration of the iris, vascularization of the graft, clouding of the graft, severe iritis, secondary glaucoma and uncontrollable pain. Some of these may lead to enucleation.

Results range from extremely gratifying to very disappointing. In our series, best results were obtained in patients with keratoconus. In each of them, vision was improved and there was a normal thick cornea over the center, without danger of perforation of the cone. In case of perforated corneal ulcers, descemetoceles and incurable corneal ulcers, results are much better if the transplantation can be performed before the cornea perforates. The results in this small series compare with those reported by others. All the grafts have healed in place, and very few eyes have been lost because of the corneal transplants. We feel that in both instances where eyes were enucleated, the eyes would have been lost whether or not a corneal transplant was done. The Eye Bank has been the best source of material because the corneas are fresh and are much more likely to transplant satisfactorily.

Braley, A. E., et al., *J. Iowa M. Soc.*, 46:340-342, 1956.

One-Stage Operation for Repair of Denuded Penis and Testicles

The abdomen and thighs are shaved, and the wound prepared by thorough washing and the application of a HisoHex solution. A thin fibrinous exudate is carefully removed, margins of the wound are debrided of only devitalized tissue, and the wound is covered with three thick split-skin grafts. Each testicle is draped into a bag of split skin, and these bags are anchored individually to the wound edges about the pubis, just lateral to and behind the root of the penis. The shaft is generously wrapped with a free split-skin graft to the suture line dorsal, and this graft is secured to the wound edges of the pubis directly above the root of the penis, the inverted skin covering the head. Large and carefully placed supportive dressings are applied to testicles, penis and pubic area. A Foley catheter is inserted, and a constipating, low-residue diet and large doses of penicillin are administered.

Time in bed is two weeks, and the first dressing is made on the ninth day. Postoperative course is uneventfull. Erections shortly after operation may be limited. As the scar tissues soften, sexual intercourse is indulged in with normal satisfaction.

Conley, J. J., *New York State J. Med.*, 56:3014-3016, 1956.

Surgical Treatment of Arthritic Feet

Surgical measures useful in the rehabilitation of arthritic feet include many of the orthopedic reconstructive procedures ordinarily applied to deformities and disabilities from other causes.

Leavitt, D. G., *Northwest Med.*, 55:1086-1088, 1956.

Promethazine in Surgery

Promethazine influences the central nervous system in a rather benign and predictable fashion; it acts rapidly and produces an excellent degree of sedation. No flushing and no respiratory or cardiovascular depression are seen. A mild hypotension may occur when it is used with atropine or heavy doses of meperidine or morphine. The pulse tends to be slow and strong. It protects against stress.

Few side-effects occur from the usual dosage, and children tolerate it well. Elderly patients experience less confusion than with many other sedatives.

This is a valuable agent for use with spinal and regional anesthesia. Production of basal anesthesia with promethazine is one of the safest techniques available.

Sadove, M. S., *J.A.M.A.*, 162:712-715, 1956.

Visual Intracardiac Surgery in a Series of 111 Patients

In the cases of 111 patients having open-heart, dry-field visual surgery during hypothermia, many kinds of congenital defects were repaired. We have come to believe that the optimal temperature level is the range of 29 to 32 C. (84.2 to 89.6 F.), and that avoidance of lower temperatures will largely eliminate two of the major complications—cardiac arrhythmias and disturbances in the clotting mechanism. In this temperature range, we believe that six minutes of circulatory occlusion is safe, but that eight minutes should not be exceeded. Within these limitations, pulmonary valvular and infundibular stenosis, atrial septal defect, and aortic stenosis can be readily corrected at low risk.

Swan, H., et al., *J.A.M.A.*, 162:941-946, 1956.

Trendelenburg Tilt

From the anesthetic aspect, no advantages accrue from the routine use of the Trendelenburg position. It is of value as an emergency measure in collapse or in sudden vomiting; as a routine it may add to the dangers and difficulties of anesthesia. Steep Trendelenburg position is not essential for operating within the pelvis. Its use is, for the most part, a relic of difficulties experienced in the past; it continues to be employed largely as a matter of custom. With modern relaxants, operative approach to the pelvis is facilitated, and the patient may be kept in a horizontal position. This invokes fewer complications than the Trendelenburg position and permits more direct vision into the pelvis.

Inglis, J. M., et al., *Brit. M. J.*, 4988:343-344, 1956.

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DOSAGE: Average, 2 cc. intramuscularly or subcutaneously, daily or thrice weekly until improvement is obtained. In severe cases, 5 cc. may be administered initially, and subsequently reduced.

SUPPLIED: As aqueous solution in 10- and 20-cc. multiple-dose vials.

1. Pensky, N., and Goldberg, N.: New York State J. Med. 53:2238, 1953. 2. Nierman, M. M.: J. Indiana M. A. 45:497, 1952. 3. Knox, J. M.: Preliminary Report, U. S. Navy Medical News Letter, vol. 20, Nov. 14, 1952. 4. Lubowe, I. L.: Clin. Med. 59:354, 1952. 5. Poole, W. L.: To be published. 6. Kalb, C.: To be published. 7. Marshall, W.: M. Times 79:222, 1951.

***Case report.**

Two months later: "the skin was dry . . . the whole face markedly improved"*

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Heart Disease in Infancy

Dyspnea during sucking might be the first indication of heart disease in an infant. Cyanosis, especially of the extremities, is not uncommon in the healthy neonate. A systolic murmur in the first week of life is frequently benign. The murmur of a congenital cardiac lesion might take weeks or months to become audible, and a year or two to become diagnostic. The signs of enlargement and hypertrophy of the cardiac chambers might also take years to develop. Phonocardiography and cardiac catheterization are difficult in infants, but angiocardiography gives satisfactory results.

The first step in differential diagnosis is to note whether cyanosis is present. Cyanosis may be delayed for several months in transposition of the great vessels, and up to two years in Fallot's tetralogy. Cyanosis with a loud split pulmonary second sound and pulmonary plethora suggests transposition of the great vessels or a persistent truncus arteriosus. In the absence of cyanosis, a systolic murmur with a loud split pulmonary second sound and pulmonary plethora indicates a septal defect or persistent ductus arteriosus. A systolic murmur with a soft pulmonary second sound and pulmonary oligemia points to pulmonary stenosis. Cardiac catheterization and angiocardiograph are often necessary to establish the diagnosis.

Cardiac enlargement without murmurs may be due to many causes. Coarctation of the aorta may lead to cardiac failure in infancy, and a vascular ring may compress the trachea and require immediate surgical treatment.

Hay, J. D., *Brit. M. J.*, 4986:224, 1956.

Trends in Poliomyelitis

Up to the middle of July, 1956, the number of reported cases of poliomyelitis in the United States was 28% lower than that for the same period of the previous year. The total number of cases for 1956 could not be estimated at time of this report.

Older children and young adults have been constituting an increasing proportion of reported cases and deaths. Among white males, the death rates in 1953-55 were lower than in 1930-42 through the ages of 5-9, and higher thereafter, the margin increasing with age. Compared with 1948-52, the death rates in 1953-55 were lower through the ages of 15-19, but for subsequent ages, the rates for the two periods were approximately equal. With minor exceptions, the trend among females paralleled that for males.

Bull. Metrop. Life Ins. Co., 37:1-3, 1956.

The Treatment of Hemophilus Influenzae, Type B, Meningitis

In the past twenty years, the mortality of *H. influenzae*, type b, meningitis in infants and children has been reduced from practically 100%, in the absence of specific treatment, to less than 5%, when newer agents are used at medical centers with optimal conditions for diagnosis and treatment.

Influenzal meningitis appears to be on the increase and, in many localities, is commoner than any other purulent meningitis.

The infant under one year of age is especially susceptible, and it is also in this age group that meningeal signs are not always obvious at an early stage.

Use of antibiotics and sulfonamides in the absence of a definite diagnosis may mask an early meningeal infection.

For these reasons, it is especially imperative that the spinal fluid of the infant be examined when any sign suggests meningeal involvement, or suspicion is directed to the central nervous system.

It is my impression, on the basis of study of literature and experience with a small series of cases, that *H. influenzae*, type b, meningitis, if seen early, can be treated effectively with chloramphenicol, with a daily dosage of 50 mg./kg. of body weight. This should be continued for one week following evidence of clinical improvement.

Pawat, E. H., *Wisconsin M. J.*, 55:820-822, 1956.

Thumbsucking

Malocclusion of teeth and deformity of the jaws and palate have been ascribed to the habit of thumbsucking. Some have deeply felt convictions that thumbsucking is, in some way, a Freudian expression of sexuality involving an erogenous zone, is a manifestation of unhappiness or frustration or, at least, of some psychological disturbance. Some doctors and the authors of some popular child-care books still teach that sucking is evidence of an unfulfilled need.

No therapeutic measures are needed when infants suck their fingers in the first two or three years of life. Parental anxieties based on any of these cultural implications should be dispelled. Physicians and dentists should cease to promote a fear-ridden attitude with regard to thumbsucking.

After carefully weighing "the evidence," it is concluded that medical and dental claims against thumbsucking are highly exaggerated, if not false.

Palermo, D. S., *Pediatrics*, 17:392, 1956.

Thyroid Disease in Pediatrics

In hypothyroidism in children, early recognition and institution of therapy are imperative if brain damage is to be avoided. The diagnosis of hypothyroidism can usually be made on clinical evidence; laboratory tests are needed in some cases.

The incidence of hypothyroidism in early life can be reduced by careful supervision of a pregnant woman on antithyroid therapy, and by adequate iodide intake by the normal pregnant woman.

Treatment of hypothyroidism in children consists of supplying the lack of endogenous thyroid hormone by giving thyroid.

Nodular goiter in children is almost invariably non-toxic, yet all such tumors should be excised for pathologic examination.

Hyperthyroidism treatment is usually thyroidectomy. Adequately treated thyrotoxicosis does not interfere with the development of these young patients.

McClintock, J. C., et al., *M. Ann. District of Columbia*, 25:419-426, 1956.

Effects of Vitamin B_6 on the Central Nervous Activity in Childhood

Initial studies from 1951 to 1953 revealed the syndrome of abnormal central nervous system activity that accompanies low vitamin B_6 intake during infancy. This includes increasing hyperirritability, gastrointestinal distress, increased startle responses, and convulsive seizures. Both the clinical and electroencephalographic changes dramatically respond to pyridoxine therapy. Treatment with 5 to 10 mg. orally will prevent symptoms for several days, but dosage must be repeated to control the situation. In one case, the intramuscular injection of 100 mg. appeared to correct the underlying pathophysiology for three months.

A follow-up study of the original 54 patients who received the diet low in vitamin B_6 has been made. Of the 28 who had complete studies, 20 were available for re-evaluation. None of these had recurrence of seizures, nor had any shown evidence of mental deterioration.

In a survey of the more widely used sources of milk for infants, vitamin B_6 content was from 60 mcg./liter to 610 mcg./liter. The most important factor in this variation was the heat processing for sterilization.

It would appear that vitamin B_6 plays a definite part in central nervous system metabolism. Under gross conditions of deficiency, deprivation, antivitamin activity, and isoniazid toxicity, clinical and EEG changes are to be expected and are readily correctible.

Vitamin B_6 apparently contributes a necessary factor. It is hoped that improved techniques for measuring the constituents of these reactions, as well as blood levels of vitamin B_6 may bring light on the origin of many nervous system disturbances.

Coursin, D. B., *Am. J. Clin. Nutrition*, 4:354, 1956.

Intramuscular Iron in Anemia of Infants

Imferon given intramuscularly raised hemoglobin 1 to 4% per day in four infants with iron-deficiency anemia. Reticulocyte rises were not uniform. No untoward reactions, local or systemic, resulted. Intramuscular Imferon appears to be a safe, effective and convenient form for iron treatment in infancy.

Wallerstein, R. O., *J. Pediatrics*, 49:173, 1956.

Old cases of PSORIASIS Quickly relieved by RIASOL

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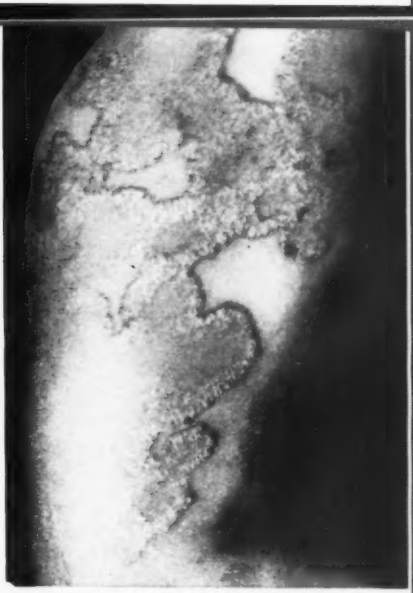

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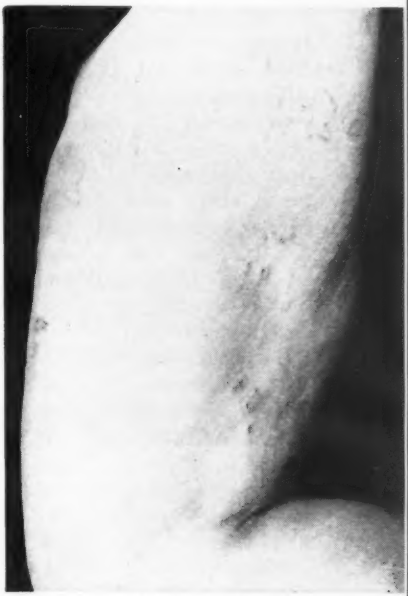

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RIASOL for PSORIASIS

Infantile Eczema

Today, reliable doctors use the terms eczema and dermatitis interchangeably; a true classification is still lacking.

The commonest types of infantile eczema are the vesicular, the vesiculo-pustular, the pustular—then eczema rubrum. The course is chronic and usually presents acute symptoms. It generally begins a few weeks after birth and may continue for four to five years; in some instances it continues into adult life. In Kesten's study of 2,000 patients with allergic eczema over a period of 25 years, ⅔ of his patients were less than six years of age, and the largest concentration was in the group of 9 to 24 months. Hereditary allergic, environmental, physical and mental factors influenced the diseases in 85%; asthma or allergic rhinitis in 40%; urticaria in 30%; dermatitis venenata in 12% and drug eruption in 4%. Wool irritations were frequently noted; in 20% of the patients, there were evidences of sensitivity to eggs, milk, wheat, orange, tomato, cod and potatoes (young children). Older children and adult sensitivities included these foods and also nuts, fruit, chocolate, cereal, fish and certain vegetables. Skin testing was positive in 31% of the patients.

Positive reactions were obtained from inhalants, fowl and domestic animal covering, wool, dust, silk, ragweed, mixed grasses and pyrethrum. Skin testing in infants has little value.

The treatment revolves about changing the medication and changing the environment. For quick relief from intolerable itching, topical and internal medications are prescribed at the onset. Topical therapy's aim is to soothe the acute and to stimulate the chronic stages. Tar is one of the most effective, yet least costly of local medicaments. Prolonged use will at times keep the disease under control. Newer antipruritics are more costly but equally effective, and more acceptable to the patient. Hydrocortone, with or without an antibiotic, has been found to be very effective. Antihistaminics are useful orally; they produce occasional unwanted but not alarming side effects. Good sedatives are the ethanolamine derivatives given at bedtime. During severe exacerbations, use of steroid, cortisone and corticotropin bring gratifying temporary relief—if care is used in their selection.

For the allergy itself, detection and avoidance of the sensitizing allergens is a prerequisite. When this is impracticable, specific immunization may be attempted. The disease still defies our efforts to arrest it permanently, and we must content ourselves with control of the symptoms in order to offer relief to the patient.

Beinhauer, L. G., *J. Indiana M. A.*, 49:1403-1410, 1956.

Therapy in Childhood

In infancy, host resistance to bacterial infection is at its lowest level, because the efficiency of phagocytosis is poor, and the infant has less gamma globulin than older children. Antisera, gamma globulin, or whole blood might therefore be of value as adjuvants to antibiotics. It might be necessary to use cortisone or ACTH also, but they should be used only if the infecting organism and its sensitivity reactions are known.

Oral penicillin has a place only in minor infections and in prophylaxis.

Swift, P., *Brit. M. J.*, 4986:225, 1956.

briefs: OBSTETRIC

Myocardial Infarction Post Partum

This is the ninth reported case in the world literature of myocardial infarction during pregnancy, or in the immediate postpartum period.

A gravida II, para I, 37 years of age had a normal weight of 159, at delivery she weighed 180 pounds. At no time in the prenatal period, was the blood pressure abnormal, nor were there any urinary changes. During pregnancy she was apprehensive that she was "too old." As the estimated delivery date, Oct. 25, 1955, passed, she began to worry a good deal and to complain of indigestion. The pain was mild, and always under the sternum.

A 7¾ lb. boy was delivered at 12:15 a.m., Nov. 20; the labor was not unduly long. Tuinal gr. 3 was given as premedication, and open-drip chloroform was used during the second stage. Following delivery, her pulse was 110, blood pressure 90/60, and the skin was cool and clammy, color poor. Although there had been no excessive bleeding, a pint of blood was given slowly. After ½ pint, the blood pressure was 110/74. The transfusion was completed at 3:00 A.M., at which time she complained of slight pain and numbness in the left arm and hand. The respiration became irregular, cyanosis appeared and there was no pulse or blood pressure. Oxygen was given, and 2 cc. of metrazol was given intramuscularly. At 3:30 A.M., the patient was much improved; blood pressure 110/60, pulse 110 and respiration 18. By 5:00 A.M., the blood pressure, pulse and respiration was stabilized; oxygen was discontinued. Serial ECGs revealed postpartum myocardial infarction. Placed on dicumerol, the postpartum course was uneventful. Prothrombin time at its slowest was 27%, and it was maintained at about 40%. The patient was dismissed on the 21st day, and dicumerol was stopped at that time.

Levine, E. L., et al., *J. Missouri M. A.*, 53:967, 1956.

Cervical Pregnancy

Since 1900, only 45 documented cases of cervical pregnancy have been reported, and, of these, only 20 have a pathological diagnosis as a confirmation.

Any woman who has vaginal bleeding following amenorrhea, especially where pregnancy is known or suspected, should have the amount of bleeding determined, and any tissue passed should be examined. Most important of all, a vaginal inspection and palpation should be done.

Carter, P. A., *J. South Carolina M. A.*, 52:323-324, 1956.

Maternal Death From Aspiration Asphyxia

No patient undergoing forceps delivery should die from aspiration of vomit. The prevention of these tragedies is attainable if certain quite simple rules are observed:

1. *The lithotomy position* should not be used in forceps delivery unless regional analgesia, in some form, is employed. It is an abomination to inflict a wide-bore stomach tube on a patient at the close of a long and tiresome labor, and it is doubtful whether this procedure ensures an empty stomach.

2. *The lateral position* effectually abolishes the risk of aspiration of vomit. It is the position into which all patients are placed when recovering from an anesthetic to obviate any risk from obstruction to the airway from vomiting. It is failure to grasp this simple fact which is chiefly responsible for the fatalities. I have repeatedly invited anyone to produce records of even a single case of death from aspiration of vomit when the patient has been delivered in the lateral position; and, as nobody has responded, it must be an extremely rare event if it ever occurs.

3. *The method of anesthesia* is clearly a matter of importance. Many of us who have used open ether for forceps delivery for many years are convinced of its supreme safety. Although vomiting frequently occurs, the coughing reflex is nearly always retained, and in any case, if the lateral position is used, all the conditions are present for safe delivery.

Morley, A. H., *Brit. M. J.*, 4987:300-301, 1956.

BOOK REVIEWS

Diseases of the Breast

by C. D. Haagensen, M.D., Columbia University. Illustrated with 404 figures and 25 charts. W. B. Saunders Company, Philadelphia & London. 1956. $16.00

The author states that he has tried to present a synthesis of what he has learned during 25 years of concentration on diseases of the breast. He emphasizes that this knowledge is a product of the environment of the Columbia-Presbyterian Medical Center in New York. Before becoming a member of the staff of this Center, the author had served under Ewing and his associates at the old Memorial Hospital.

The depth and the breadth of this training and experience are reflected in the presentation of this important subject. A clear, scholarly text is supplemented by excellent illustrations. With the exception of the part favoring self-examination for the detection of breast cancer (which this reviewer firmly believes does far more harm than good in the aggregate), the book is an excellent presentation of the best knowledge of the present time on this subject.

Diseases of the Heart

by Charles K. Friedberg, M.D., Columbia University. Second edition. W. B. Saunders Co., Philadelphia & London. 1956. $18.00

One of the very best contemporary texts on a subject of the very first importance. The book could be improved if the author would discard some of his modesty and tell his readers what he knows and what he believes, as the result of his experience and reading, to be the essentials of diagnosis and the best means of treatment.

Clinical Pathology: Application and Interpretation

by Benjamin B. Wells, M.D., Ph.D., The Lynn Clinic, Detroit. W. B. Saunders Company, Philadelphia & London. 1956. $8.50

It is stated that the purpose of the book was to be entirely practical; the topics were selected and developed only as they pertain to urgent and frequent needs of medical practice; and material was arranged exactly as the doctor uses it. This purpose has been achieved.

Dermatology

by Donald M. Pillsbury, M.A., D.Sc., (Hon.), M.D.,; Watler B. Shelley, M.D., Ph.D., and Albert M. Kligman, M.D., Ph.D., University of Pennsylvania School of Medicine. W. B. Saunders Company, Philadelphia, London. 1956. $20.00

The authors realize that diseases affecting the skin present much difficulty and confusion to the general physician. They kept in mind the viewpoint of students and doctors who have little experience with skin diseases and have written accordingly. This volume is commended as a most helpful coverage of the whole subject of dermatology.

Pulmonary Emphysema

edited by Alvan L. Barach, M.D., Columbia University College of Physicians and Surgeons; and Hylan A. Bickerman, M.D., Columbia University College of Physicians and Surgeons. The Williams and Wilkins Company, Baltimore. 1956. $10.00

The physiologic and therapeutic aspects of pulmonary emphysema are discussed by contributors with wide experience in this field. Differences of opinion on the clinical aspect are plainly stated. A special objective has been an attempt to establish the continuous inhalation of oxygen in the treatment. Intermittent pressure breathing is advocated in many cases. Measures that decrease ventilation by providing more efficient gas exchange have been emphasized as of primary importance, in order to relieve dyspnea, and to prevent alveolar overdistention and increase of bullous disease.

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